NHÓM BIÊN SOẠN 2015

BỘ MÔN: HÓA HỌC

CHUYÊN ĐỀ ÔN THI ĐẠI HỌC

1040 PHƯƠNG TRÌNH PHẢN ỨNG HÓA HỌC PHỨC TẠP NHẤT

Chủ biên: Lý Thị Kiều An

Thái Nguyên, tháng 07 năm 2014

- *Tài liệu được soạn theo nhu cầu của các bạn học sinh khối trường THPT (đặc biệt là khối 12).*
- *Biên soạn theo cấu trúc câu hỏi trong đề thi tuyển sinh Đại học – Cao đẳng của Bộ GD&ĐT.*
- *Tài liệu do tập thể tác giả biên soạn:*
    1. *Cô Lý Thị Kiều An – CLB gia sư Thái Nguyên (Chủ biên).*
    2. *Cao Văn Tú – CN.Mảng Toán – Khoa CNTT – Trường ĐH CNTT&TT Thái Nguyên (Đồng chủ biên).*
    3. *Thầy Nguyễn Văn Nam – CLB gia sư Bắc Giang.*
    4. *Ngô Thị Thanh Hoa – SVNC – Khoa Hóa – Trường ĐHSP Thái Nguyên.*
    5. *Vũ Thị Hạnh – SV Khoa CNTT – Trường ĐHSP Thái Nguyên.*

- *Tài liệu được lưu hành nội bộ - Nghiêm cấm sao chép dưới mọi hình thức.*
- *Nếu chưa được sự đồng ý của ban Biên soạn mà tự động post tài liệu thì đều được coi là vi phạm nội quy của nhóm.*
- *Tài liệu đã được bổ sung và chỉnh lý lần thứ 1.*

Tuy nhóm Biên soạn đã cố gắng hết sức nhưng cũng không thể tránh khỏi sự sai xót nhất định.
Rất mong các bạn có thể phản hồi những chỗ sai xót về địa chỉ email: ltkan.nhombs2014@gmail.com !
Xin chân thành cám ơn!!!
Chúc các bạn học tập và ôn thi thật tốt!!!

Thái Nguyên, tháng 07 năm 2014

Bộ phận Duyệt tài liệu

TM.Bộ phận Duyệt tài liệu
Trưởng Bộ phận

Cao Văn Tú

Thái Nguyên, tháng 07 năm 2014

TM.Nhóm Biên soạn
Trưởng nhóm Biên soạn

Lý Thị Kiều An

1001 PHƯƠNG TRÌNH PHẢN ỨNG HÓA HỌC PHỨC TẠP NHẤT

A. HÓA VÔ CƠ.

1. $2\ KMnO_4 + 10\ FeSO_4 + 8\ H2SO4 \rightarrow 2\ MnSO_4 + 5\ Fe_2(SO_4)_3 + K_2SO_4 + 8\ H_2O$

2. $2KMnO_4 + 4K_2SO_3 + H_2O \rightarrow MnO_2 + K_2SO_4 + KOH$

3. $2\ KMnO_4 + K_2SO_3 + 2\ KOH \rightarrow 2\ K_2MnO_4 + K_2SO_4 + H_2O$

4. $K_2Cr_2O_7 + 6FeSO_4 + 7H2SO4 \rightarrow Cr_2(SO_4)_3 + 3Fe_2(SO_4)_3 + K_2SO_4 + 7H_2O$

5. $2KCrO_4 + 3(NH_4)_2S + 2H_2O \rightarrow 2Cr(OH)_3 + 3S + 6NH_3 + 4KOH$

6. $Fe + 6\ HNO_{3\ (đ,\ nóng)} \rightarrow Fe(NO_3)_3 + 3\ NO_2 + 3\ H2O$

7. $Fe + 4HNO_3(l) \rightarrow Fe(NO_3)_3 + NO + 2H_2O$

8. $3Cu + 2NO_3^- + 8H^+ \rightarrow 3Cu^{2+} + 2NO + 4H_2O$

9. $Cu + 2H2SO4(đ,\ nóng) \rightarrow CuSO_4 + SO_2 + 2H_2O$

10. $2Fe + 6H_2SO_4(đ,\ nóng) \rightarrow Fe_2(SO_4)_3 + 3SO_2 + 6H_2O$

11. $Fe + 4HNO_3(l) \rightarrow Fe(NO_3)_3 + NO + 2H_2O$

12. $Fe + 6HNO_3(đ,\ nóng) \rightarrow Fe(NO_3)_3 + 3NO_2 + 3H_2O$

13. $3Cu + 2NO3^- + 8H^+ \longrightarrow 3\ Cu^{2+} + 2NO + 4H2O$

14. $2\ Fe + 6\ H_2SO_4 \rightarrow Fe_2(SO_4)_3 + 3SO_2 + 6H_20$

15. $CrSO_4 + O_2 + H_2SO_4 \rightarrow 2Cr_2(SO_4)_3 + 2H_2O$

16. $2Cr + 6H_2SO_4 \rightarrow 2Cr_2(SO_4)_3 + 3SO_2\uparrow + 3H_2O$

17. $Cr + 4HNO_3 \rightarrow Cr(NO_3)_3 + NO\uparrow + 2H_2O$

18. $Cr + HNO_3 + 3\ HCl \rightarrow CrCl_3 + NO\uparrow + 2H_2O$

19. $4\ FeCr_2O_4 + 8\ Na_2CO_3 + 7\ O_2 \rightarrow 8\ Na_2CrO_4 + 2\ Fe_2O_3 + 8\ CO_2$

20. $2\ Na_2CrO_4 + H_2SO_4 \rightarrow Na_2Cr_2O_7 + Na_2SO_4 + H_2O$

21. $Na_2Cr_2O_7 + 2\ C \rightarrow Cr_2O_3 + Na_2CO_3 + CO$

22. $Cr_2O_3 + 2Al \xrightarrow{t^0} 2Cr + Al_2O_3$

23. $4\ CrCl_2 + O_2 + 4HCl \rightarrow 4CrCl_3 + 2H_2O$

24. $4Cr(OH)_2 + O_2 + 2H_2O \rightarrow 4Cr(OH)_3$

25. $4Cr(OH)_2 + O_2 + 2H_2O \longrightarrow 4Cr(OH)_3$

26. $Cr(OH)_2 + 2HCl \longrightarrow CrCl_2 + 2H_2O$

27. $2CrCl_2 + Cl_2 \longrightarrow 2CrCl_3$

28. $Cr_2O_3 + 6HCl \longrightarrow 2CrCl_3 + 3H_2O$

29. $Cr_2O_3 + 2NaOH \longrightarrow 2NaCrO_2 + H_2O$

30. $Cr_2O_3 + 2NaOH + 3H_2O \longrightarrow 2Na[Cr(OH)_4]$

31. $Cr(OH)_3 + 3HCl \longrightarrow CrCl_3 + 3H_2O$

32. $Cr(OH)_3 + NaOH \longrightarrow Na[Cr(OH)_4]$

33. $Cr(OH)_3 + NaOH \longrightarrow NaCrO_2 + 2H_2O$

34. $2Cr(OH)_3 \rightarrow Cr_2O_3 + 3H_2O$

35. $Cr(OH)_3 + 3Na_2O_2 \rightarrow 2Na_2CrO_4 + 2NaOH + 2H_2O$

36. $2Cr(OH)_3 + 3H_2O_2 + 4NaOH \rightarrow 2Na_2CrO_4 + 8H_2O$

37. $2Cr(OH)_3 + 3Cl_2 + 10\ NaOH \rightarrow 2Na_2CrO_4 + 6NaCl + 8\ H_2O$

38. $2Cr(OH)_3 + 3Br_2 + 10NaOH \rightarrow 2Na_2CrO_4 + 6NaBr + 8H_2O$

39. $2\ Cr(OH)_3 + 3NaOCl + 4NaOH \rightarrow 2Na_2CrO_4 + 3NaCl + 5H_2O$

40. $2Cr(OH)_3 + 3PbO_2 + 4NaOH \rightarrow 2Na_2CrO_4 + 3PbO + 5H_2O$

41. $Cr(OH)_3 + 3KmnO_4 + 5KOH \rightarrow K_2CrO_4 + 3K_2MnO4 + 4H_2O$

42. $CrCl_3 + 3NaOH \rightarrow Cr(OH)_3\downarrow + 3NaCl$

43. $Cr(OH)_3 + NaOH \rightarrow NaCrO_2 + 2H_2O$

44. $2NaCrO_2 + 3Na_2O_2 + 4H_2O \rightarrow 2\ Na_2CrO_4 + 4NaOH$

45. $2CrCl_3 + Zn \longrightarrow 2CrCl_2 + ZnCl_2$

46. $Cr_2(SO_4)_3 + Zn \longrightarrow 2CrSO_4 + ZnSO_4$

47. $2CrBr_3 + 3Br_2 + 16KOH \rightarrow 2K_2CrO_4 + 12KBr + 8H_2O$

48. $2CrCl_3 + 3Br_2 + 16KOH \rightarrow 2K_2CrO_4 + 6KBr + 6KCl + 8H_2O$

49. $Cr_2(SO_4)_3 + 3Br_2 + 16KOH \rightarrow 2K_2CrO_4 + 6KBr + 3K_2SO_4 + 8H_2O$

50. $2Cr(NO_3)_3 + 3Br_2 + 16KOH \rightarrow 2K_2CrO_4 + 6KBr + 6KNO_3 + 8H_2O$

51. $2Cr^{3+} + 3Br_2 + 16OH^- \longrightarrow 2CrO_4^{2-} + 6Br^- + 8H_2O$

52. $4CrO_3 + 3S \longrightarrow 3SO_2 + 2Cr_2O_3$

53. $10CrO_3 + 6P \longrightarrow 3P_2O_5 + 5Cr_2O_3$

54. $4CrO_3 + 3C \longrightarrow 3CO_2 + 2Cr_2O_3$

55. $C_2H_5OH + 4CrO_3 \longrightarrow 2CO_2 + 3H_2O + 2Cr_2O_3$

56. $2CrO_3 + 2NH_3 \longrightarrow Cr_2O_3 + N_2 + 3H_2O$

57. $2K_2CrO_4 + H_2SO_4 \longrightarrow K_2Cr_2O_7 + K_2SO_4 + H_2O$

58. $K_2Cr_2O_7 + 2KOH \longrightarrow 2K_2CrO_4 + H_2O$

59. $K_2Cr_2O_7 + 6FeSO_4 + 7H_2SO_4 \rightarrow Cr_2(SO_4)_3 + 3Fe_2(SO_4)_3 + K_2SO_4 + 7H_2O$

60. $K_2Cr_2O_7 + 6KI + 7H_2SO_4 \rightarrow Cr_2(SO_4)_3 + 4K_2SO_4 + 3I_2 + 7H_2O$

61. $K_2Cr_2O_7 + 14HCl \rightarrow 2KCl + 3CrCl_3 + 3Cl_2 + 7H_2O$

62. $K_2Cr_2O_7 + 3H_2S + 4H_2SO_4 \rightarrow Cr_2(SO_4)_3 + K_2SO_4 + 7H_2O + 3S$

63. $(NH_4)_2Cr_2O_7 \xrightarrow{t^0} N_2 + Cr_2O_3 + 4H_2O$

64. $Cr2(SO_4)_3 + 6KOH \rightarrow 2Cr(OH)_3 + 3K_2SO_4$

65. $2Cr(OH)_3 + 3Br_2 + 10KOH \rightarrow 2K_2CrO_4 + 6KBr + 8\ H_2O.$

66. $2K_2CrO_4 + H_2SO_4 \rightarrow K_2Cr_2O_7 + K_2SO_4$

67. $K_2Cr_2O_7 + H_2SO_4 đặc \rightarrow CrO_3 + K_2SO_4 + H_2O$

68. $2Fe + 6H_2SO_4\ (đặc) \xrightarrow{t^o} Fe_2(SO_4)_3 + 3SO_2\uparrow + 6H_2O$

69. $Fe + 6HNO_3\ (đặc) \xrightarrow{t^o} Fe(NO_3)_3 + 3NO_2\uparrow + 3H_2O$

70. $Fe + 4HNO_3\ (loãng) \xrightarrow{t^o} Fe(NO_3)_3 + NO\uparrow + 2H_2O$

71. $Fe + CuSO_4 \longrightarrow FeSO_4 + Cu\downarrow$

72. $2FeO + 4H_2SO_4\ (đặc) \xrightarrow{t^o} Fe_2(SO_4)_3 + SO_2\uparrow + 4H_2O$

73. $3FeO + 10HNO_3\ (loãng) \xrightarrow{t^o} 3Fe(NO_3)_3 + NO\uparrow + 5H_2O$

74. $FeO + H_2 \xrightarrow{t^o} Fe + H_2O$

75. $Fe_2O_3 + CO \xrightarrow{500-600^oC} 2FeO + CO_2$

76. $4Fe(OH)_2 + O_2 + 2H_2O \longrightarrow 4Fe(OH)_3$

77. $4Fe(OH)_2 + O_2 \xrightarrow{t^o} 2Fe_2O_3 + 4H_2O$

78. $Fe(OH)_2 + H_2SO_4\ (loãng) \longrightarrow FeSO_4 + 2H_2O$

79. $2Fe(OH)_2 + 4H_2SO_4\ (đặc) \xrightarrow{t^o} Fe_2(SO_4)_3 + SO_2\uparrow + 6H_2O$

80. $3Fe(OH)_2 + 10HNO_3\ (loãng) \xrightarrow{t^o} 3Fe(NO_3)_3 + NO\uparrow + 8H_2O$

81. $FeCl_2 + 2NaOH \longrightarrow Fe(OH)_2\downarrow + 2NaCl$

82. $2FeCl_2 + Cl_2 \longrightarrow 2FeCl_3$

83. $10FeSO_4 + 2KMnO_4 + 8H_2SO_4 \longrightarrow 5Fe_2(SO_4)_3 + K_2SO_4 + 2MnSO_4 + 8H_2O$

84. $Fe_2O_3 + 6HNO_3 \longrightarrow 2Fe(NO_3)_3 + 3H_2O$

85. $Fe_2O_3 + 2Al \xrightarrow{t^o} Al_2O_3 + Fe$

86. $Fe_2O_3 + 3CO \xrightarrow{t^o} 2Fe + 3CO_2$

87. $2Fe(OH)_3 \xrightarrow{t^o} Fe_2O_3 + 3H_2O$

88. $2Fe(OH)_3 + 3H_2SO_4 \longrightarrow Fe_2(SO_4)_3 + 3H_2O$

89. $FeCl_3 + 3NaOH \longrightarrow Fe(OH)_3 + 3NaCl$

90. $Cu + 2FeCl_3 \longrightarrow CuCl_2 + 2FeCl_2$

91. $2FeCl_3 + 2KI \longrightarrow 2FeCl_2 + 2KCl + I_2$

92. $FeCl_3 + 3KSCN \rightleftharpoons Fe(SCN)_3 + 3KCl$

93. $Fe^{2+} + 6CN^- \rightarrow [Fe(CN)_6]^{4-} \rightarrow Fe_4[Fe(CN)_6]_3$

94. $Fe^{3+} + 6CN^- \rightarrow [Fe(CN)_6]^{3-} \rightarrow Fe_3[Fe(CN)_6]_2$

95. $3Fe_3O_3 + CO \rightarrow 2Fe_3O_4 + CO_2$

96. $Fe_3O_4 + CO \rightarrow 3FeO + CO_2$

97. $FeO + CO \rightarrow Fe + CO_2$

98. $3Fe + C \xrightarrow{to} Fe_3C$

99. $3Fe + 2CO \xrightarrow{to} Fe_3C + CO_2$

100. $CaCO_3 \xrightarrow{to} CaO + CO2$

101. $CaO + SiO_{2(cát)} \xrightarrow{to} CaSiO_3$ (xỉ)

102. $P_2O_5 + 3CaO \xrightarrow{to} Ca_3(PO_4)_2$

103. $4Al + 3O_2 \xrightarrow{t^o} 2Al_2O_3$ ($\Delta H = -2.1675,7kJ$)

104. $4Al + 3C \xrightarrow{t^o} Al_4C_3$

105. $2Al + 3S \xrightarrow{t^o} Al_2S_3$

106. $Al + P \xrightarrow{t^o} AlP$

107. $8Al + 3Fe_3O_4 \xrightarrow{t^o} 9Fe + 4Al_2O_3 + Q$

108. $2Al + Cr_2O_3 \xrightarrow{t^o} 2Cr + Al_2O_3 + Q$

109. $Al + 3HCl \rightarrow AlCl_3 + 3/2H_2$

110. $8Al + 30HNO_3 \xrightarrow{t^o} 8Al(NO_3)_3 + 3N_2O + 15H_2O$

111. $2Al + 6H_2SO_4$ đặc $\xrightarrow{t^o} Al_2(SO_4)_3 + 3SO_2 + 6H_2O$

112. $2Al + 2NaOH + 6H_2O \rightarrow 2Na[Al(OH)_4] + 3H_2$

113. $2Al + 2NaOH + H_2O \rightarrow 2NaAlO_2 + 3H_2$

114. $SiO_2 + 2NaOH \rightarrow Na_2SiO_3 + H_2O$

115. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$

116. $NaAlO_2 + CO_2 + 2H_2O \rightarrow Al(OH)_3 + NaHCO_3$

117. $2Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O$

118. $2Al_2O_3 \xrightarrow{dpnc} 4Al + 3O_2$

119. $Al_2O_3 + 9C \xrightarrow{>2000^oC} Al_4C_3 + 6CO$

120. $Al_2O_3 + 6HCl \rightarrow 2AlCl_3 + 3H_2O$

121. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$

122. $2Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O$

123. $Al(OH)_3 + 3HCl \rightarrow AlCl_3 + 3H_2O$

124. $Al(OH)_3 + NaOH \rightarrow NaAlO_2 + 2H_2O$ hay $Al(OH)_3 + OH^- \rightarrow [Al(OH)_4]^-$

125. $AlCl_3 + NaOH \rightarrow Al(OH)_3 \downarrow +$ NaCl nếu dư $Al(OH)_3 + NaOH \rightarrow NaAlO_2 + 2H_2O$

126. $2AlCl_3 + 3Na_2CO_3 + 3H_2O \rightarrow 2Al(OH)_3 \downarrow + 6NaCl + 3CO_2 \uparrow$

127. $AlCl_3 + 3NH_3 + 3H_2O \rightarrow Al(OH)_3 \downarrow + 3NH_4Cl$

128. $2NaAlO_2 + CO_2 + 3H_2O \rightarrow 2\ Al(OH)_3\downarrow + Na_2CO_3$

129. $NaAlO_2 +$ HCl vừa đủ $+ H_2O \rightarrow Al(OH)_3\downarrow +$ NaCl

130. $KAl(SO_4)_2.12H_2O \rightarrow K^+ + Al^{3+} + 2SO_4^{2-} + 12H_2O$

131. $Zn + 2NaOH \rightarrow Na_2ZnO_2 + H_2\uparrow$

132. $Al + NaOH + 3H_2O \rightarrow Na\left[Al(OH)_4\right] + 3/2 H_2\uparrow$

133. $Zn + 2NaOH + 2H_2O \rightarrow Na_2\left[Zn(OH)_4\right] + H_2\uparrow$

134. $ZnO + 2OH^- \rightarrow ZnO_2^{2-} + H_2O$

135. $Zn(OH)_2 + 2OH^- \rightarrow ZnO_2^{2-} + 2H_2O$

136. $ZnO_2^{2-} + 2CO_2 + 2H_2O \rightarrow Zn(OH)_2\downarrow + 2HCO_3^-$

137. $Cl_2 + H_2O \rightleftharpoons HCl + HClO$

138. $Cl_2 + 2KOH \xrightarrow{t^0 \text{thường}} KCl + KClO + H_2O$

139. $3Cl_2 + 6KOH \xrightarrow{>75^0C} 5KCl + KClO_3 + 3H_2O$

140. $2Cl_2 + 2Ca(OH)_{2\ \text{loãng}} \rightarrow CaCl_2 + Ca(OCl)_2 + 2H_2O$

141. $Cl_2 + Ca(OH)_{2\ \text{huyền phù}} \rightarrow CaOCl_2 + H_2O$

142. $Cl_2 + 2NaBr \rightarrow 2NaCl + Br_2$ $Cl_2 + 2NaI \rightarrow 2NaCl + I_2$

143. $SO_2 + Cl_2 + 2H_2O \rightarrow H_2SO_4 + 2HCl$

144. $6FeSO_4 + 3Cl_2 \rightarrow 2Fe_2(SO_4)_3 + 2FeCl_3$

145. $H_2S + 4Cl_2 + 4H_2O \rightarrow H_2SO_4 + 8HCl$

146. $MnO_2 + 4HCl_{\text{đặc}} \xrightarrow{t^0} MnCl_2 + Cl_2 + 2H_2O$

147. $2KMnO_4 + 16HCl \rightarrow 2KCl + 2MnCl_2 + 5Cl_2 + 8H_2O$

148. $2NaCl + 2H_2O \xrightarrow[\text{mnx}]{\text{đpdd}} 2NaOH + Cl_2\uparrow + H_2\uparrow$

149. $Al_2O_3 + 6HCl \rightarrow 2AlCl_3 + 3H_2O$

150. $CuO + 2HCl \rightarrow CuCl_2 + H_2O$

151. $CaCO_3 + 2HCl \rightarrow CaCl_2 + CO_2\uparrow + H_2O$

152. $FeS + 2HCl \rightarrow FeCl_2 + H_2S\uparrow$

153. $Na_2SO_3 + 2HCl \rightarrow 2NaCl + SO_2\uparrow + H_2O$

154. $AgNO_3 + HCl \rightarrow AgCl\downarrow + HNO_3$

155. $NaCl_{\text{tinh thể}} + H_2SO_{4\ \text{đặc}} \xrightarrow{t^0} NaHSO_4 + HCl\uparrow$

156. $2NaCl_{\text{tinh thể}} + H_2SO_{4\ \text{đặc}} \xrightarrow{t^0} 2Na_2SO_4 + HCl\uparrow$

157. $Cl_2 + 2KOH \rightarrow KCl + KClO + H_2O$

158. $2H_2S + 3O_2 \rightarrow 2SO_2 + 2H_2O$

159. $Cl_2 + 2NaOH \rightarrow NaCl + NaClO + H_2O$

160. $O_3 + 2KI + H_2O \rightarrow O_2 + 2KOH + I_2$

161. $H_2S + 2NaOH \rightarrow Na_2S + 2H_2O$

162. $H_2S + NaOH \rightarrow NaHS + H_2O$

163. $H_2S + Cu(NO_3)_2 \rightarrow CuS\downarrow_{\text{đen}} + 2HNO_3$

164. $2\ H_2S + 3\ O_2 \xrightarrow{t^0} 2\ SO_2 + 2\ H_2O$

165. $2\ H_2S + O_{2\ \text{oxi hoá chậm}} \xrightarrow{t^0} 2\ S + 2\ H_2O$

166. $H_2S + 4Cl_2 + 4H_2O \rightarrow H_2SO_4 + 8HCl$

167. $2SO_2 + O_2 \underset{450-500^0C}{\overset{V_2O_5}{\rightleftharpoons}} 2SO_3$

168. $SO_2 + Br_2 + 2H_2O \rightarrow H_2SO_4 + 2HBr$

169. $SO_2 + Cl_2 + 2H_2O \rightarrow H_2SO_4 + 2HCl$

170. $2FeS_2 + 11O_2 \rightarrow 2Fe_2O_3 + 8SO_2$

171. $Na_2SO_3 + H_2SO_4 \rightarrow Na_2SO_4 + SO_2\uparrow + H_2O$

172. $Cu + 2H_2SO_{4\ \text{đặc}} \xrightarrow{t^0} CuSO_4 + SO_2 + 2H_2O$

173. $MgCO_3 + H_2SO_4 \rightarrow MgSO_4 + CO_2\uparrow + H_2O$

174. $Na_2CO_3 + H_2SO_4 \rightarrow Na_2SO_4 + CO_2\uparrow + H_2O$

175. $H_2SO_{4\,đặc} + NaOH \rightarrow Na_2SO_4 + H_2O$

176. $2Fe + 6H_2SO_{4\,đặc} \xrightarrow{t^0} Fe_2(SO_4)_3 + 3SO_2 + 6H_2O$

177. $2FeO + 4H_2SO_{4\,đặc} \rightarrow Fe_2(SO_4)_3 + SO_2 + 4H_2O$

178. $2FeCO_3 + 4H_2SO_{4\,đặc} \rightarrow Fe_2(SO_4)_3 + SO_2 + 2CO_2 + 4H_2O$

179. $2Fe_3O_4 + 10H_2SO_{4\,đặc} \rightarrow 3Fe_2(SO_4)_3 + SO_2 + 10H_2O$

180. $2FeSO_4 + 2H_2SO_{4\,đặc} \rightarrow Fe_2(SO_4)_3 + SO_2 + 2H_2O$

181. $NH_3 + HCl \rightarrow NH_4Cl$

182. $2\,NH_3 + H_2SO_4 \rightarrow (NH_4)_2SO_4$

183. $4NH_3 + 3O_2 \xrightarrow{t^0} 2N_2 + 6H_2O$

184. $AlCl_3 + 3NH_3 + 3H_2O \rightarrow Al(OH)_3\downarrow + 3NH_4Cl$

185. $4NH_3 + 5O_2 \xrightarrow[Pt]{850^0C} 4NO + 6H_2O$

186. $Cu(OH)_2\downarrow + 4\,NH_3\,(dd) \rightarrow [Cu(NH_3)_4]^{2+}\,(dd) + 2OH^-\,(dd)$

187. $N_2 + 3H_2 \underset{200\text{-}300\,(atm),\,Fe}{\overset{450\text{-}500^0C}{\rightleftharpoons}} 2NH_3$

188. $NH_4Cl + NaOH \rightarrow NaCl + NH_3\uparrow + H_2O$

189. $NH_4HCO_3 \xrightarrow{t^0} NH_3\uparrow + CO_2\uparrow + H_2O$

190. $NH_4NO_2 \xrightarrow{t^0} N_2 + 2\,H_2O$ Hoặc: $NH_4NO_3 \xrightarrow{t^0} N_2O + 2\,H_2O$

191. $HNO_3 + NaOH \rightarrow NaNO_3 + H_2O$

192. $2HNO_3 + Mg(OH)_2 \rightarrow Mg(NO_3)_2 + 2H_2O$

193. $Fe_2O_3 + 6\,HNO_3 \rightarrow 2\,Fe(NO_3)_3 + 3\,H_2O$

194. $CuO + 2\,HNO_3 \rightarrow Cu(NO_3)_2 + H_2O$

195. $Fe + 4HNO_{3\,loãng} \rightarrow Fe(NO_3)_3 + NO\uparrow + 2H_2O$

196. $10Al + 36HNO_3 \rightarrow 10Al(NO_3)_3 + 3N_2\uparrow + 18H_2O$

197. $8Al + 30HNO_3 \rightarrow 8Al(NO_3)_3 + 3N_2O\uparrow + 15H_2O$

198. $KNO_3 \rightarrow K^+ + NO_3^-$ và $H_2SO_4 \rightarrow 2H^+ + SO_4^{2-}$

199. $4Mg + 10HNO_3 \rightarrow 4Mg(NO_3)_2 + NH_4NO_3 + 3H_2O$

200. $KNO_3 \rightarrow K^+ + NO_3^-$ và $H_2SO_4 \rightarrow 2H^+ + SO_4^{2-}$

201. $3FeO + 10HNO_3 \rightarrow 3Fe(NO_3)_3 + NO + 5H_2O$

202. $Fe_3O_4 + 10HNO_3 \rightarrow 3Fe(NO_3)_3 + NO_2 + 5H_2O$

203. $FeCO_3 + 4HNO_3 \rightarrow Fe(NO_3)_3 + NO_2 + CO_2 + 2H_2O$

204. $3Fe^{2+} + NO_3^- + 4H^+ \rightarrow 3Fe^{3+} + NO + 2H_2O$

205. $FeS_2 + 18HNO_3 \rightarrow Fe(NO_3)_3 + 2H_2SO_4 + 15NO_2 + 7H_2O$

206. $C + 4HNO_3 \rightarrow CO_2 + 4NO_2 + 2H_2O$

207. $S + 6HNO_3 \rightarrow H_2SO_4 + 6NO_2 + 2H_2O$

208. $4NH_3 + 5O_2 \xrightarrow[Pt]{850^0C} 4\,NO + 6H_2O$

209. $2NO + O_2 \rightarrow 2NO_2$;

210. $4NO_2 + O_2 + 2H_2O \rightarrow 4HNO_3$

211. $2KNO_3 \xrightarrow{t^0} 2KNO_2 + O_2$

212. $2Pb(NO_3)_2 \xrightarrow{t^0} 2PbO + 4NO_2 + O_2$

213. $2Cu(NO_3)_2 \xrightarrow{t^0} 2CuO + 4NO_2 + O_2$

214. $2AgNO_3 \xrightarrow{t^0} 2Ag + 2NO_2 + O_2$

215. $3\,C + 2KClO_3 \xrightarrow{t^0} 2KCl + 3CO_2$

216. $C + 2CuO \xrightarrow{t^0} 2Cu + CO_2$

217. $C + ZnO \xrightarrow{t^0} Zn + CO$

218. $Ca + 2\,C \xrightarrow{t^0} CaC_2$

219. $4\,Al + 3\,C \xrightarrow{t^0} Al_4C_3$

220. $Al_4C_3 + 12H_2O \rightarrow 4Al(OH)_3 + 3CH_4\uparrow$.

221. $PdCl_2 + H_2O + CO \rightarrow Pd + 2\,HCl + CO_2$

222. $CO_2 + 2H_2O \rightleftharpoons H_3O^+ + HCO_3^-$

223. $CO_2 + 2\,NaOH \rightarrow Na_2CO_3 + H_2O$

224. $Na_2CO_3 + CO_2 + H_2O \rightarrow NaHCO_3$

225. $CaCO_3 + 2\,HCl \rightarrow CaCl_2 + CO_2\uparrow + H_2O$

226. $Si + O_2 \xrightarrow{t^o} SiO_2$

227. $Si + 2NaOH + H_2O \xrightarrow{t^o} Na_2SiO_3 + 2H_2$

228. $SiO_2 + CaO \xrightarrow{t^o} CaSiO_3$ (canxi silicat)

229. $SiO_2 + 2NaOH \xrightarrow{t^o} Na_2SiO_3 + H_2O$

230. $SiO_2 + K_2CO_3 \xrightarrow{t^o} K_2SiO_3 + CO_2\uparrow$

231. $2HCl + Na_2SiO_3 \rightarrow H_2SiO_3 + 2NaCl$

232. $Al + NaOH + H_2O \rightarrow NaAlO_2 + 3/2H_2$

233. $AlCl_3 + 4NaOH \rightarrow NaAlO_2 + 3NaCl + 2H_2O$

234. $NaHCO_3 + Ca(OH)_2 \rightarrow CaCO_3 + NaOH + H_2O$

235. $NaAlO_2 + 4HCl \rightarrow AlCl_3 + NaCl + 2H_2O$

236. $Cl_2 + 6KOH \longrightarrow 5KCl + KClO_3 + 3H_2O$

237. $Cl_2 + 2KOH \rightarrow KCl + KClO + 2H_2O$

238. $2AlCl_3 + 3Na_2CO_3 + 3H_2O \longrightarrow 2Al(OH)_3 + NaCl + 3CO_2$

239. $Al_2(SO_4)_3 + 3Na_2CO_3 + 3H_2O \longrightarrow 2Al(OH)_3 + 3Na_2SO_4 + 3CO_2$

240. $2AlCl_3 + 3Na_2S + 6H_2O \longrightarrow 2Al(OH)_3 + 6NaCl + 3H_2S$

241. $NaAlO_2 + NH_4Cl + H_2O \longrightarrow Al(OH)_3 + NaCl + NH_3$

242. $2FeCl_3 + 3Na_2CO_3 + 3H_2O \longrightarrow 2Fe(OH)_3 + 6NaCl + 3CO_2$

243. $2FeCl_3 + 3Na_2S + 6H_2O \longrightarrow 2Fe(OH)_3 + 6NaCl + 3H_2S$

244. $3KNO_3 + 5KOH + 8Al + 2H_2O \longrightarrow 8K\,AlO_2 + 3NH_3$

245. $(KOH + Al + H_2O \longrightarrow KAlO_2 + 3/2H_2)$

246. $2KNO_3 + 4H_2SO_4 + 3Cu \longrightarrow 3CuSO_4 + K_2SO_4 + 2NO + 4H_2O$

247. $(3Cu + 2NO_3^- + 8H^+ \longrightarrow 3Cu^{2+} + 2NO + 4H_2O)$

248. H_2SO_4đặc $+ KL \longrightarrow MSO_4^{2-} + \{SO_2, S, H_2S\} + H_2O$

249. $2H_2SO_4$ đặc $+ S \longrightarrow 3SO_2 + 2H_2O$

250. $2H_2SO_4$ *đặc* $+ C \longrightarrow CO_2 + 2SO_2 + 2H_2O$

251. H_2SO_4 *đặc* $+ H_2S \longrightarrow SO_2 + S + 2H_2O$

252. $4H_2SO_4$ *đặc* $+ 2FeO \longrightarrow Fe_2(SO_4)_3 + SO_2 + 4H_2O$

253. $10H_2SO_4$ *đặc* $+ 2Fe_3O_4 \longrightarrow 3Fe_2(SO_4)_3 + SO_2 + 10H_2O$

254. $4H_2SO_4$ *đặc* + $2Fe(OH)_2 \longrightarrow Fe_2(SO_4)_3 + SO_2 + 6H_2O$

255. $14H_2SO_4$ *đặc* + $2FeS_2 \longrightarrow Fe_2(SO_4)_3 + 15SO_2 + 14H_2O$

256. $2H_2SO_4$ *đặc* + $2NaBr \longrightarrow Na_2SO_4 + SO_2 + Br_2 + 2H_2O$

257. $5H_2SO_4$ *đặc* + $8NaI \longrightarrow 4Na_2SO_4 + H_2S + 4I_2 + 4H_2O$

258. $HNO_3 + KL \longrightarrow MNO_3^- + \{NO_2, NO, N_2O, N_2, NH_4NO_3\} + H_2O$

259. $HNO_3 + Au + 3HCl \longrightarrow AuCl_3 + NO + 2H_2O$

260. $6HNO_3$ *đặc* + $S \xrightarrow{\text{nhiệt độ}} H_2SO_4 + 6NO_2 + 2H_2O$

261. $5HNO_3$ *đặc* + $P \xrightarrow{\text{nhiệt độ}} H_3PO_4 + 5NO_2 + H_2O$

262. $5HNO_3$ *loãng* + $3P + 2H_2O \longrightarrow 3H_3PO_4 + 5NO$

263. $4HNO_3$ *đặc* + $C \xrightarrow{\text{nhiệt độ}} CO_2 + 4NO_2 + 2H_2O$

264. $10HNO_3 + 3I_2 \longrightarrow 6HIO_3 + 10NO + 2H_2O$

265. $4HNO_3$ *đặc* + $FeO \longrightarrow Fe(NO_3)_3 + NO_2 + 2H_2O$

266. $10HNO_3$ *loãng* + $3FeO \longrightarrow 3Fe(NO_3)_3 + NO + 5H_2O$

267. $10HNO_3$ *đặc* + $Fe_3O_4 \longrightarrow 3Fe(NO_3)_3 + NO_2 + 5H_2O$

268. $28HNO_3$ *loãng* + $3Fe_3O_4 \longrightarrow 9Fe(NO_3)_3 + NO + 14H_2O$

269. $4HNO_3$ *đặc* + $Fe(OH)_2 \longrightarrow Fe(NO_3)_3 + NO_2 + 3H_2O$

270. $10HNO_3$ *loãng* + $3Fe(OH)_2 \longrightarrow 3Fe(NO_3)_3 + NO + 8H_2O$

271. $48HNO_3$ *đặc* + $3FeS_2 \longrightarrow Fe(NO_3)_3 + Fe_2(SO_4)_3 + 3H_2SO_4 + 45NO_2 + 21H_2O$

272. $18HNO_3$ *loãng* + $3FeS_2 \longrightarrow Fe(NO_3)_3 + Fe_2(SO_4)_3 + 3H_2SO_4 + 15NO + 6H_2O$

273. *L□u ý:* Hai ph- ơng trình trên nên viết d- ới dạng ph- ơng trình ion rút gọn:

274. $14H^+ + 15NO_3^- + FeS_2 \longrightarrow Fe^{3+} + 15NO_2 + 2SO_4^{2-} + 7H_2O$

275. $4H^+ + 5NO_3^- + FeS_2 \longrightarrow Fe^{3+} + 5NO + 2SO_4^{2-} + 2H_2O$

276. $30HNO_3$ *đặc* + $3FeS \longrightarrow Fe(NO_3)_3 + Fe_2(SO_4)_3 + 27NO_2 + 15H_2O$

277. $12HNO_3$ *loãng* + $3FeS \longrightarrow Fe(NO_3)_3 + Fe_2(SO_4)_3 + 9NO + 6H_2O$

278. $10H^+ + 9NO_3^- + FeS \longrightarrow Fe^{3+} + 9NO_2 + SO_4^{2-} + 5H_2O$

279. $4H^+ + 3NO_3^- + FeS \longrightarrow Fe^{3+} + 3NO + SO_4^{2-} + 2H_2O$

280. $4HNO_3$ *đặc* + $FeCO_3 \longrightarrow Fe(NO_3)_3 + CO_2 + NO_2 + 2H_2O$

281. $10HNO_3$ *loãng* + $3FeCO_3 \longrightarrow 3Fe(NO_3)_3 + 3CO_2 + NO + 5H_2O$

282. $O_3 + 2KI + H_2O \longrightarrow 2KOH + I_2 + O_2$

283. $O_2 + S \xrightarrow{\text{nhiệt độ}} SO_2$

284. $O_2 + 2SO_2 \xrightarrow[450^0C]{V_2O_5} 2SO_3$

285. $O_2 + 2H_2S \longrightarrow 2S + 2H_2O$

286. $3O_2 + 2H_2S \longrightarrow 2SO_2 + 2H_2O$

287. $3O_2 + 4NH_3 \xrightarrow{\text{Đốt cháy}} 2N_2 + 6H_2O$

288. $5O_2 + 4NH_3 \xrightarrow[850^0C]{Pt} 4NO + 6H_2O$

289. $1/2O_2 + H_2O + 2Fe(OH)_2 \longrightarrow 2Fe(OH)_3$

290. $1/2O_2 + 2HCl + 2FeCl_2 \longrightarrow 2FeCl_3 + H_2O$

291. $3/2O_2 + 3H_2O + 6FeSO_4 \longrightarrow 2Fe(OH)_3 + 2Fe_2(SO_4)_3$

292. $3F_2 + 4NH_3 \longrightarrow 3NH_4F + NF_3$

293. $Cl_2 + 2FeCl_2 \longrightarrow 2FeCl_3$

294. $3/2Cl_2 + 3FeSO_4 \longrightarrow Fe_2(SO_4)_3 + FeCl_3$

295. $3Cl_2 + 8NH_3 \longrightarrow 6NH_4Cl + N_2$

296. $Cl_2 + 2H_2O + SO_2 \longrightarrow H_2SO_4 + 2HCl$

297. $4Cl_2 + 4H_2O + H_2S \longrightarrow H_2SO_4 + 8HCl$

298. $Cl_2 + H_2O + H_2SO_3 \longrightarrow H_2SO_4 + 2HCl$

299. $2FeCl_3 + 2KI \longrightarrow 2FeCl_2 + I_2 + 2KCl$

300. $FeCl_3 + 2HI \longrightarrow FeCl_2 + I_2 + 2HCl$

301. $2FeCl_3 + Na_2S \longrightarrow 2FeCl_2 + S + 2NaCl$

302. $2FeCl_3 + H_2S \longrightarrow 2FeCl_2 + S + 2HCl$

303. $4KNO_3 + C \xrightarrow{\text{nhiệt độ}} 2K_2O + CO_2 + 4NO_2$

304. $2\,KNO_3 + S + 3C \xrightarrow{\text{nhiệt độ}} K_2S + 3CO_2 + N_2$

305. $2KClO_3 + 3C \xrightarrow{\text{nhiệt độ}} 2KCl + 3CO_2$

306. $2KClO_3 + 3S \xrightarrow{\text{nhiệt độ}} 2KCl + 3SO_2$

307. $5KClO_3 + 6P \xrightarrow{\text{nhiệt độ}} 5KCl + 3P_2O_5$

308. $2NH_3 + 3CuO \xrightarrow{\text{nhiệt độ}} N_2 + 3Cu + 3H_2O$

309. $2H_2S + SO_2 \longrightarrow 3S + 2H_2O$

310. $NH_4\,NO_2 \xrightarrow{\text{nhiệt phân}} N_2 + \underline{2H_2O}\longrightarrow$

311. $NH_4NO_3 \xrightarrow{>200^0C} N_2 + 1/2O_2 + 2H_2O$

312. $NH_4NO_3 \xrightarrow{<200^0C} N_2O + 2H_2O$ *(phản ứng nổ)*

313. $3(NH_4)_2SO_4 \xrightarrow{\text{nhiệt phân}} N_2 + 4NH_3 + 3SO_2 + 6H_2O$

314. $(NH_4)_3PO_4 \xrightarrow{\text{nhiệt phân}} 3NH_3 + HPO_3 + H_2O$

315. $(NH_4)_2Cr_2O_7 \xrightarrow{\text{nhiệt phân}} N_2 + Cr_2O_3 + 4H_2O$

316. $3Cu + 8HNO_3 \rightarrow 2Cu(NO_3)_2 + 2NO + 4H_2O$

317. $2\,HCO_3^- \xrightarrow{t^0} CO_2\uparrow + CO_3^{2-} + H_2O$

318. $2\,HCO_3^- \xrightarrow{t^0} CO_2\uparrow + CO_3^{2-} + H_2O$

319. $Mg^{2+} + 2OH^- \rightarrow Mn(OH)_2\downarrow$

320. $Al^{3+} + 3OH^- \rightarrow Al(OH)_3\downarrow$

321. $Al(OH)_3 + OH^- \rightarrow AlO_2^- + 2H_2O$

322. $3H_2S + 2KMnO_4 \rightarrow 2MnO_2 + 3S\downarrow + 2KOH + 2H_2O$

323. $5H_2S + 2KMnO_4 + 3H_2SO_4 \rightarrow 2MnSO_4 + 5S\downarrow + K_2SO_4 + 8H_2O$

324. $H_2S + 2FeCl_3 \rightarrow 2FeCl_2 + S\downarrow + 2HCl$

325. $SO_2 + 2KMnO_4 + 2H_2O \rightarrow 2H_2SO_4 + 2MnSO_4 + K_2SO_4$

326. $Cu(OH)_2 + 2HCl \text{ ---> } CuCl_2 + 2H_2O$

327. $K_2Cr_2O_7 + 6FeSO_4 + 7H_2SO_4 \text{ ---> } 3Fe_2(SO_4)_3 + Cr_2(SO_4)_3 + K_2SO_4 + 7H_2O$

328. $2NaCrO_2 + 3Br_2 + 8NaOH \text{ ---> } 2Na_2CrO_4 + 6NaBr + 4H_2O$

329. $2CrCl_3 + Zn \text{ ---> } 2CrCl_2 + ZnCl_2$

330. $Cr(OH)_3 + NaOH \text{ ---> } NaCrO_2 + 2H_2O$

331. $AlCl_3 + 3NH_3 + 3H_2O \text{ ---> } Al(OH)_3\downarrow + 3NH_4Cl$

332. $Ca(HCO_3)_2 \xrightarrow{t^o} CaCO_3\downarrow + CO_2\uparrow + H_2O$

333. $Ca(HCO_3)_2 + Ca(OH)_2 \text{ ---> } 2CaCO_3\downarrow + 2H_2O$

334. $Ca(HCO_3)_2 + Na_2CO_3 \text{ ---> } CaCO_3\downarrow + 2NaHCO_3$

335. $CaSO4 + Na2CO3 \text{ ---> } CaCO3\downarrow + Na2SO4$

336. $CaSO_4.2H_2O \xrightarrow{t^o} CaSO_4.H_2O$

337. $4Mg + 10HNO_3 \text{ (loãng) ---> } 4Mg(NO_3)_2 + NH_4NO_3 + 3H_2O$

338. $4Mg + 5H_2SO_4 \text{ (đặc) ---> } 4MgSO_4 + H_2S + 4H_2O$

339. $2NaHCO_3 \xrightarrow{t^o} Na_2CO_3 + CO_2 + H_2O$

340. $NaHCO_3 + HCl \text{ ---> } NaCl + CO_2 + H_2O$

341. $NaHCO_3 + NaOH \text{ ---> } Na_2CO_3 + H_2O$

342. $Na_2CO_3 + 2HCl \text{ ---> } 2NaCl + CO_2 + H_2O$

343. $4AgNO_3 + 2H_2O \xrightarrow{đpdd} 4Ag + O_2 + 4HNO_3$

344. $CuSO_4 + 2H_2O \xrightarrow{đpdd} 2Cu + 2H_2SO_4 + O_2$

345. $2Na + 2H_2O \longrightarrow 2NaOH + H_2$

346. $3Fe + 4H_2O \xrightarrow{<570^\circ C} Fe_3O_4 + 4H_2$

347. $4Na + O_2 \longrightarrow 2Na_2O$

348. $2Na + O_2(dư) \longrightarrow Na_2O_2$ (Natri peoxit)

349. $3Ca + N_2 \xrightarrow{t^\circ} Ca_3N_2$ (Canxi nitrua)

350. $2Na + CuO \xrightarrow{t^\circ,\text{Chân không}} Cu + Na_2O$

351. $Al + NaOH + H_2O \longrightarrow Na\,AlO_2 + 3/2\,H_2$

352. $Zn + 2NaOH \longrightarrow Na_2ZnO_2 + H_2$

353. $2Al + Ba(OH)_2 + 2H_2O \longrightarrow Ba(AlO_2)_2 + 3H_2$

354. $2Al + 3H_2SO_4(loãng) \longrightarrow Al_2(SO_4)_3 + 3H_2$

355. $Al + HNO_3(rất\ loãng) \xrightarrow{t^\circ} Al(NO_3)_3 + H_2O + NH_4NO_3$

356. $Fe + CuSO_4 \longrightarrow FeSO_4 + Cu$

357. $Fe + 2FeCl_3 \longrightarrow 3FeCl_2$

358. $Cu + 2FeCl_3 \longrightarrow 2FeCl_2 + CuCl_2$

359. $Fe(NO_3)_2 + AgNO_3 \longrightarrow Fe(NO_3)_3 + Ag\ (\downarrow)$

360. $2KClO_3 + 12HCl \xrightarrow{t^\circ} 2KCl + 5Cl_2 + 6H_2O$

361. $MnO_2 + 4HCl \xrightarrow{t^\circ} MnCl_2 + Cl_2 + 2H_2O$

362. $2KMnO_4 + 14HCl \xrightarrow{t^\circ} 2MnCl_2 + 2KCl + 5Cl_2 + 8H_2O$

363. $H_2SO_4\ (đặc) + 2HCl \xrightarrow{t^\circ} SO_2 + 2H_2O + Cl_2$

364. $3C + Fe_2O_3 \xrightarrow{t^\circ cao} 2Fe + 3CO$

365. $SO_2 + Cl_2 + H_2O \longrightarrow H_2SO_4 + HCl$

366. $SO_2 + Br_2 + H_2O \longrightarrow H_2SO_4 + HBr$

367. $SO_2 + I_2 + H_2O \longrightarrow H_2SO_4 + HI$

368. $X_2 + 2NaOH \longrightarrow NaX + NaXO + H_2O$

369. $Cl_2 + 2NaOH \longrightarrow NaCl + NaClO + H_2O$ (Nước Javen)

370. $3Cl_2 + 6NaOH \xrightarrow{>70\ ^\circ C} 5NaCl + NaClO_3 + 3H_2O$

371. $Cl_2 + Ca(OH)_2 \longrightarrow CaOCl_2$ (Clorua vôi) $+ H_2O$

372. $Cl_2 + 2HBr \longrightarrow 2HCl + Br_2$

373. $3S + 4HNO_3(l) \longrightarrow 3SO_2 + 4NO + 2H_2O$

374. Hoặc $S + 2HNO_3(l) \longrightarrow H_2SO_4 + 2NO$

375. $S + 6HNO_3(đ) \longrightarrow H_2SO_4 + 6NO_2 + 2H_2O$

376. $S + 2H_2SO_4(đ) \longrightarrow 3SO_2 + 2H_2O$

377. $C + 4HNO_3(l) \longrightarrow 3CO_2 + 4NO + 2H_2O$

378. $C + 4HNO_3(đ) \longrightarrow CO_2 + 4NO_2 + 2H_2O$

379. $C + 2H_2SO_4(đ) \longrightarrow CO_2 + 2SO_2 + 2H_2O$

380. $2P + 5HNO_3(l) + 2H_2O \longrightarrow 3H_3PO_4 + 5NO$

381. $P + 5HNO_3(đ) \longrightarrow H_3PO_4 + 5NO_2 + H_2O$

382. $2P + 5H_2SO_4(đ) \longrightarrow 2H_3PO_4 + 5SO_2 + 2H_2O$

383. $Cl_2 + 2NaBr \longrightarrow 2NaCl + Br_2$

384. $Br_2 + 2NaI \longrightarrow 2NaBr + I_2$

385. (**) $Cl_2 + 2FeCl_2 \longrightarrow 2FeCl_3$

386. $3Cl_2 + 6FeBr_2 \longrightarrow 2FeCl_3 + 4FeBr_3$

387. $K_2O + H_2O \longrightarrow 2KOH$

388. $CaO + H_2O \longrightarrow Ca(OH)_2$

389. $Al_2O_3 + 2NaOH \longrightarrow 2NaAlO_2 + H_2O$

390. $ZnO + 2KOH \longrightarrow K_2ZnO_2 + H_2O$

391. $Cr_2O_3 + Ba(OH)_2 \longrightarrow Ba(CrO_2)_2 + H_2O$

392. $FeO + 2HCl \longrightarrow FeCl_2 + H_2O$

393. $Fe_3O_4 + 8HCl \longrightarrow FeCl_2 + 2FeCl_3 + 4H_2O$

394. $Fe_3O_4 + 4H_2SO_4 \longrightarrow FeSO_4 + Fe_2(SO_4)_3 + 4H_2O$

395. $FeO + 4HNO_3(l) \xrightarrow{t^\circ} Fe(NO_3)_3 + 2H_2O + NO$

396. $Fe_3O_4 + 10HNO_3(đ) \xrightarrow{t^\circ} 3Fe(NO_3)_3 + 5H_2O + NO_2$

397. $2Fe_3O_4 + 10H_2SO_4(đ) \xrightarrow{t^\circ} 3Fe_2(SO_4)_3 + 10H_2O + SO_2$

398. $2NO_2 + H2O \longrightarrow HNO_3 + HNO_2$

399. $4NO_2 + 2H_2O + O_2 \longrightarrow 4HNO_3$

400. $CO_2 + NaAlO_2 + 2H_2O \longrightarrow Al(OH)_3 + NaHCO_3$

401. $2SO_2 + K_2ZnO_2 + 2H_2O \longrightarrow Zn(OH)_2 + 2KHSO_3$

402. $2Al(OH)_3 + Ba(OH)_2 \longrightarrow Ba(AlO_2)_2 + 4H_2O$

403. $Zn(OH)_2 + 2NaOH \longrightarrow Na_2ZnO_2 + 2H_2O$

404. $3Fe(OH)_2 + 10HNO_3(l) \longrightarrow 3Fe(NO_3)_3 + 8H_2O + NO$

405. $2Fe(OH)_2 + 4H_2SO_4(đ) \longrightarrow Fe_2(SO_4)_3 + 6H_2O + SO_2$

406. $2NaOH + CuCl_2 \longrightarrow Cu(OH)_2$ (kết tủa xanh) $+ 2NaCl$

407. $3Ba(OH)_2 + Fe_2(SO_4)_3 \longrightarrow 3BaSO_4$(ktua trắng) $+ 2Fe(OH)_3$(kt nâu đỏ)

408. $KOH + NH_4Cl \longrightarrow KCl + NH_3 + H_2O$

409. $Cu(OH)_2 \xrightarrow{t^\circ} CuO + H_2O$

410. $2Fe(OH)_3 \xrightarrow{t^\circ} Fe_2O_3 + 3H_2O$

411. $Fe(OH)_2 \xrightarrow{t^\circ,\ \text{chân không}} FeO + H_2O$

412. $4Fe(OH)_2 + O_2 \xrightarrow{t^\circ} 2Fe_2O_3 + 4H_2O$

413. $AgNO_3 + HCl \longrightarrow AgCl$ (kết tủa vàng nhạt) $+ HNO_3$

414. $Na_2CO_3 + 2HCl \longrightarrow 2NaCl + H_2O + CO_2$

415. $CH_3COONa + HCl \longrightarrow NaCl + CH_3COONa$

416. $K_2SiO_3 + H_2SO_4 \longrightarrow K_2SO_4 + H_2SiO_3$(kết tủa trắng)

417. $K_2S + 2HCl \longrightarrow 2KCl + H_2S$ (khí mùi trứng thối)

418. $C_6H_5ONa + CO_2 + H_2O \longrightarrow C_6H_5OH + NaHCO_3$

419. $Na_2CO_3 + FeCl_3 + H_2O \longrightarrow Fe(OH)_3 + NaCl + CO_2$

420. $Ca(NO_3)_2 \xrightarrow{t^\circ} Ca(NO_2)_2 + O_2$

421. $2Ca(NO_3)_2 \xrightarrow{t°cao} 2CaO + O2 + 4NO_2$

422. $2Cu(NO_3)_2 \xrightarrow{t^\circ} 2CuO + O_2 + 4NO_2$

423. $4Fe(NO_3)_2 \xrightarrow{t^\circ} 2Fe_2O_3 + O_2 + 8NO_2$

424. $NH_4HSO_4 \xrightarrow{t^\circ} NH_3 + H_2SO_4$

425. $(NH_4)_2SO_4 \xrightarrow{t^\circ} 2NH_3 + H_2SO_4$

426. $NH_4HCO_3 \xrightarrow{t^\circ} NH_3 + CO_2 + H_2O$

427. $(NH_4)_2CO_3 \xrightarrow{t^\circ} 2NH_3 + CO_2 + H_2O$

428. $NH_4HSO_3 \xrightarrow{t^\circ} NH_3 + SO_2 + H_2O$

429. $(NH_4)_2SO_3 \xrightarrow{t^\circ} 2NH_3 + SO_2 + H_2O$

430. $NH_4NO_3 \xrightarrow{t^\circ} N_2O + 2H_2O$

431. $NH_4NO_2 \xrightarrow{t^\circ} N_2 + 2H_2O$

432. $NH_4NO_3 \xrightarrow{t^0} N_2O + 2H_2O$

433. $Hg(NO_3)_2 \xrightarrow{t^0} Hg_{(l)} + 2NO_2 + \frac{1}{2}O_2$; $Hg_{(l)} \xrightarrow{t^0} Hg_{(h)}$

434. $CH_3NH_3NO_3 + O_2 \xrightarrow{t^0} CO_2 + 3H_2O + N_2$

435. $Na_2CO_3 + 2HCl \rightarrow 2NaCl + CO_2\uparrow + H_2O$

436. $NH_4Cl \xrightarrow{t^0} NH_3\,(k) + HCl\,(k)$

437. $(NH_4)_2CO_3 \xrightarrow{t^0} NH_3\,(k) + NH_4HCO_3\,(r)$

438. $NH_4HCO_3 \xrightarrow{t^0} NH_3\,(k) + CO_2\,(k) + H_2O\,(k)$

439. $NH_4NO_2 \xrightarrow{t^0} N_2 + 2H_2O$

440. $NH_4NO_3 \xrightarrow{t^0} N_2O + 2H_2O$

441. $(NH_4)_2SO_4 + 2NaOH \xrightarrow{t^0} 2NH_3\uparrow + 2H_2O + Na_2SO_4$

442. $2NH_4Cl + Ca(OH)_2 \xrightarrow{t^0} CaCl_2 + 2NH_3\uparrow + 2H_2O$

443. $Cu(OH)_2 + 4NH_3 \rightarrow [Cu(NH_3)_4](OH)_2$ (xanh thẩm)

444. $Ag_2O + 2NH_3 + 2H_2O \rightarrow 2[Ag(NH_3)_2]OH$

445. $AgCl + 2NH_3 \rightarrow [Ag(NH_3)_2]Cl$

446. $M(NO_3)_x + x/2\ H_2O \quad M + x/4\ O_2 + xHNO_3$

447. $NH_3 + CO_2 \xrightarrow{t^o} (NH_2)_2CO + H_2O$

448. $Ca_3(PO_4)_2 + H_2SO_{4\,(thiếu)} \rightarrow Ca(H_2PO_4)_2 + CaSO_4$

449. $Ca_3(PO_4)_2 + H_3PO_4 \rightarrow Ca(H_2PO_4)_2$

450. $Ca(OH)_2 + Na_2CO_3 \rightarrow CaCO_3\downarrow + 2NaOH$

451. $3CaO.SiO_2 + 5H_2O \rightarrow Ca_2SiO_4.4H_2O + Ca(OH)_2$

452. $2CaO.SiO_2 + 4H_2O \rightarrow Ca_2SiO_4.4H_2O$

453. $3CaO.Al_2O_3 + 6H_2O \rightarrow Ca_3(AlO_3)_2.6H_2O$

454. $H_2SiO_3 \xrightarrow{t^o} SiO_2 + 2H_2O$

455. $Na_2SiO_3 + CO_2 + H_2O \rightarrow Na_2CO_3 + H_2SiO_3\downarrow$

456. $SiO_2 + 2NaOH \xrightarrow{t^o} Na_2SiO_3 + H_2O$

457. $SiO_2 + 2Na_2CO_3 \xrightarrow{t^o} Na_2SiO_3 + CO_2$

458. $SiO_2 + 4HF \rightarrow SiF_4 + 2H_2O$

459. $SiO_2 + 2Mg \xrightarrow{t^o} 2MgO + Si$

460. $SiO_2 + 2C_{\text{than cốc}} \xrightarrow{t^o} 2CO + Si$

461. $Si + F_2 \rightarrow SiF_4$; $Si + O_2 \xrightarrow{t^o} SiO_2$

462. $Si + 2NaOH + H_2O \xrightarrow{t^o} Na_2SiO_3 + H_2$

463. $Si + 2Mg \xrightarrow{t^o} Mg_2Si$

464. $NaAlO_2 + CO_2 + H_2O \rightarrow Al(OH)_3\downarrow + NaHCO_3$

465. $C_6H_5ONa + CO_2 + H_2O \rightarrow C_6H_5OH + NaHCO_3$

466. $HCl + Na_2CO_3 \rightarrow NaHCO_3 + NaCl$

467. $HCl + NaHCO_3 \rightarrow NaCl + CO_2 + H_2O$

468. $CaCO_3 \xrightarrow{t^o} CaO + CO_2$; gốc HCO_3 bị nhiệt phân

469. $2NaHCO_3 \xrightarrow{t^o} Na_2CO_3 + CO_2 + H_2O$

470. $Ca(HCO_3)_2 \xrightarrow{t^o} CaCO_3 + CO_2 + H_2O$

471. $C + O_2 \xrightarrow{t^o} CO_2$; $CO_2 + C \xrightarrow{t^o} 2CO$; $Fe_2O_3 + 3C \xrightarrow{t^o} 2Fe + 3CO$

472. $CaO + 3C \xrightarrow{t^o} CaC_2 + CO$; $2C + Ca \xrightarrow{t^o} CaC_2$

473. $FeO + CO \xrightarrow{t^o} Fe + CO_2$

474. $C + H_2O \xrightarrow{t^o} CO + H_2$; $4Al + 3C \xrightarrow{t^o} Al_4C_3$

475. $C + 2H_2 \xrightarrow{t^o} CH_4$; $C + ZnO \xrightarrow{t^o} Zn + CO$

476. $C + 4HNO_{3\,đặc} \xrightarrow{t^o} CO_2 + 4NO_2 + 2H_2O$

477. $Ca(HCO_3)_2$: . $Ca(HCO_3)_2 \xrightleftharpoons{t^o} CaCO_3\downarrow + CO_2\uparrow + H_2O$

478. $CaCO_3$:$CaCO_3 \xrightarrow{1000^oC} CaO + CO_2\uparrow$

479. $3KClO \xrightarrow{t^o} KClO_3 + 2KCl$

480. $4KClO_3 \xrightarrow{t^o} 3KClO_4 + KCl$

481. $2KClO_3 \xrightarrow{t^o} 2KCl + 3O_2\uparrow$

482. $2NaHCO_3 \xrightarrow{t^o} Na_2CO_3 + CO_2\uparrow + H_2O$

483. $2NaNO_3 \xrightarrow{t^o} 2NaNO_2 + O_2\uparrow$

484. $2KMnO_4 \xrightarrow{t^o} K_2MnO_4 + 2O_2\uparrow + 2MnO_2$

485. $Fe_2O_3 + 3C \rightarrow 2Fe + 3CO$

486. $2Fe_2O_3 + 3Si \rightarrow 4Fe + 3SiO_2$

487. $Fe_2O_3 + 3Mn \rightarrow 2Fe + 3MnO$

488. $MgSO_4 + Na_2CO_3 \rightarrow MgCO_3\downarrow + Na_2SO_4$

489. $Mg(HCO_3)_2 + Na_2CO_3 \rightarrow MgCO_3\downarrow + 2NaHCO_3$.

490. $Ca(HCO_3)_2 \xrightarrow{t^o} CaCO_3\downarrow + H_2O + CO_2\uparrow$

491. $Ca(HCO_3)_2 + Ca(OH)_2 \rightarrow 2CaCO_3\downarrow + H_2O$.

492. $FeS_2 + 8HNO_3 \rightarrow Fe(NO_3)_3 + 2H_2SO_4 + 5NO + 2H_2O$

493. $Cu(OH)_2 + 4NH_3 \rightarrow [Cu(NH_4)_3](OH)_2$

494. $AgCl + 2NH_3 \rightarrow [Ag(NH_3)_2]Cl$

495. $Na[Al(OH)_4] \rightarrow Na^+ + [Al(OH)_4]^-$

496. $[Al(OH)_4]^- + H_3O^+ \rightarrow Al(OH)_3\downarrow + 2H_2O$

497. $NH_4Cl + Na[Al(OH)_4] \rightarrow Al(OH)_3\downarrow + NH_3\uparrow + NaCl + H_2O$

498. $3Na_2CO_3 + 2FeCl_3 + 3H_2O \rightarrow 2Fe(OH)_3\downarrow + 3CO_2\uparrow + 6NaCl$

499. $Al_2S_3 + 6H_2O \rightarrow 2Al(OH)_3\downarrow + 3H_2S\uparrow$

500. $Fe_2(CO_3)_3 + 3H_2O \rightarrow 2Fe(OH)_3\downarrow + 3CO_2\uparrow$

501. $NH_4Cl + NaNO_2 \xrightarrow{t^o} N_2 + NaCl + 2H_2O$

502. $P + 5HNO_3\ (đặc) \xrightarrow{t^o} H_3PO_4 + 5NO_2 + H_2O$

503. $NaNO_3\ (rắn) + H_2SO_4\ (đặc) \xrightarrow{t^o} HNO_3 + NaHSO_4$

504. $CO_2 + 2NH_3 \xrightarrow{180-200^oC,200atm} (NH_2)_2CO + H_2O$

505. $5K_2SO_3 + 2KMnO_4 + 6KHSO_4 \rightarrow 9K_2SO_4 + 2MnSO_4 + 3H_2O$

506. $10FeCl_2 + 6KMnO_4 + 24H_2SO_4 \rightarrow 5Fe_2(SO_4)_3 + 3K_2SO_4 + 6MnSO_4 + 10Cl_2 + 24H_2O$

507. $CaCO_3 + 2HNO_3 \rightarrow Ca(NO_3)_2 + CO_2 + H_2O$

508. $3Fe_3O_4 + 28HNO_3 \rightarrow 9Fe(NO_3)_3 + NO + 14H_2O$

509. $Al + 4HNO_3 \rightarrow Al(NO_3)_3 + NO + 2H_2O$

510. $Al + HOH + NaOH \rightarrow NaAlO_2 + 3/2H_2$

511. $CaCO_3 + H_2SO_4 \rightarrow CaSO_4 + CO_2 + H_2O$

512. $Fe_3O_4 + 4H_2SO_4 \rightarrow FeSO_4 + Fe_2(SO_4)_3 + 4H_2O$

513. $CaCO_3 \xrightarrow{t^o} CaO + CO_2Fe_3O_4 + 4CO \xrightarrow{t^o} 3Fe + 4CO_2$

514. $Ca_3(PO_4)_2 + 5C + 3SiO_2 \xrightarrow{1200^0C} 3CaSiO_3 + 2P + 5CO$

515. $Cl_2 + 2NaBr \longrightarrow 2NaCl + Br_2$

516. $Cl_2 + 2NaI \longrightarrow 2NaCl + I_2$

517. $Cl_2 + 2H_2O + SO_2 \longrightarrow 2HCl + H_2SO_4$

518. $Cl_2 + 2FeCl_2 \longrightarrow 2FeCl_3$

519. $MnO_2 + 4HCl \rightarrow MnCl_2 + Cl_2 + 2H_2O$

520. $2KMnO_4 + 16HCl \rightarrow 2MnCl_2 + 5Cl_2 + 2KCl + 8H_2O$

521. $KClO_3 + 6HCl \rightarrow KCl + 3H_2O + 3Cl_2$

522. $2NaCl + 2H_2O \longrightarrow 2NaOH + H_2 + Cl_2$

523. $\xrightarrow{đpnc}$

524. $2NaCl \longrightarrow Na + Cl_2$

525. $2KMnO_4 + 16HCl \rightarrow 2KCl + 5Cl_2 + 2MnCl_2 + 8H_2O$

526. $2NaCl_{(R)} + H_2SO_{4\ đặc} \longrightarrow Na_2SO_4 + 2HCl$

527. $HCl + AgNO_3 \longrightarrow AgCl + HNO_3$

528. $NaCl + AgNO_3 \longrightarrow AgCl + NaNO_3$

529. $3Cl_2 + 6KOH \rightarrow 5KCl + KClO_3 + 3H_2O$

530. $F_2 + H_2S \rightarrow 2HF + S$

531. $F_2 + H_2O \rightarrow HF + O_2$

532. $Cl_2 + H_2S \rightarrow 2HCl + S$

533. $3FeCl_2 + 3Cl_2 \rightarrow 2FeCl_3$

534. $Cl_2 + 2NaBr \rightarrow 2NaCl + Br_2$

535. $Cl_2 + 2NaI \rightarrow 2NaCl + I_2$

536. $Br_2 + H_2 \rightarrow 2HBr$

537. $Br_2 + 2NaI \rightarrow 2NaBr + I_2$

538. $I_2 + H_2S \rightarrow 2HI + S$

539. $3Cl_2 + S + 4H_2O \rightarrow 6HCl + H_2SO_4$

540. $Cl_2 + SO_2 + 2H_2O \rightarrow 2HCl + H_2SO_4$

541. $4Cl_2 + H_2S + 4H_2O \rightarrow 8HCl + H_2SO_4$

542. $3Br_2 + S + 4H_2O \rightarrow 6HBr + H_2SO_4$

543. $Br_2 + SO_2 + 2H_2O \rightarrow 2HBr + H_2SO_4$ (phản ứng nhận biết khí SO_2).

544. $4Br_2 + H_2S + 4H_2O \rightarrow 8HBr + H_2SO_4$

545. $5Cl_2 + 6H_2O + I_2 \rightarrow 10HCl + 2HIO_3$

546. $5Br_2 + 6H_2O + I_2 \rightarrow 10HCl + 2HIO_3$

547. $3Cl_2 + 6NaOH \xrightarrow{70^0} 5NaCl + NaClO_3 + 3H_2O$

548. $Cl_2 + Ca(OH)_2 \xrightarrow{30^0} CaOCl_2 + H_2O$

549. $3Br_2 + 6NaOH \rightarrow 5NaBr + NaBrO_3 + 3H_2O$

550. $MnO_2 + 4HCl \xrightarrow{t^0} MnCl_2 + Cl_2\uparrow + 2H_2O$

551. $MnO_2 + 4NaCl + 4H_2SO_4 \xrightarrow{t^0} MnCl_2 + 4NaHSO_4 + Cl_2\uparrow + 2H_2O$

552. $2KMnO_4 + 16HCl \xrightarrow{t^0} 2MnCl_2 + Cl_2\uparrow + 2KCl + 8H_2O$

553. $K_2Cr_2O_7 + 14HCl \xrightarrow{t^0} 2KCl + 2CrCl_3 + 3Cl_2\uparrow + 7H_2O$

554. $CaOCl_2 + 2HCl \xrightarrow{t^0} CaCl_2 + H_2O + Cl_2\uparrow$

555. $2NaClO + 2HCl \xrightarrow{t^0} 2NaCl + Cl_2\uparrow + H_2O$

556. $2NaI + MnO_2 + 2H_2SO_4 \xrightarrow{t^0} MnSO_4 + I_2 + Na_2SO_4 + 2H_2O$

557. $2NaBr + MnO_2 + 2H_2SO_4 \xrightarrow{t^0} MnSO_4 + Br_2 + Na_2SO_4 + 2H_2O$

558. $2HCl + Cu(OH)_2 \rightarrow CuCl_2 + 2H_2O$

559. $HBr + NaOH \rightarrow NaBr + H_2O$

560. $8HCl + Fe_3O_4 \rightarrow 2FeCl_3 + FeCl_2 + 4H_2O$

561. $8HBr + Fe_3O_4 \rightarrow 2FeBr_3 + FeBr_2 + 4H_2O$

562. $8HI + Fe_3O_4 \rightarrow 2FeI_3 + FeI_2 + 4H_2O$

563. $MnO_2 + 4HCl \xrightarrow{t^0} MnCl_2 + Cl_2\uparrow + 2H_2O$

564. $MnO_2 + 4NaCl + 4H_2SO_4 \xrightarrow{t^0} MnCl_2 + 4NaHSO_4 + Cl_2\uparrow + 2H_2O$

565. $2KMnO_4 + 16HCl \xrightarrow{t^0} 2MnCl_2 + Cl_2\uparrow + 2KCl + 8H_2O$

566. $K_2Cr_2O_7 + 14HCl \xrightarrow{t^0} 2KCl + 2CrCl_3 + 3Cl_2\uparrow + 7H_2O$

567. $CaOCl_2 + 2HCl \xrightarrow{t^0} CaCl_2 + H_2O + Cl_2\uparrow$

568. $2NaClO + 2HCl \xrightarrow{t^0} 2NaCl + Cl_2\uparrow + H_2O$

569. $PbO_2 + 4HCl \xrightarrow{t^0} PbCl_2 + Cl_2\uparrow + 2H_2O$

570. $2HBr\ (k) + H_2SO_4\ (®) \rightarrow Br_2 + SO_2\uparrow + 2H_2O$

571. $8HI(k) + H_2SO_4\ (®) \rightarrow 4I_2 + H_2S\uparrow + 4H_2O$

572. $4HBr + O_2 \rightarrow Br_2 + 2H_2O$

573. $4HI + O_2 \rightarrow I_2 + 2H_2O$

574. $MnO_2 + 4HBr \rightarrow MnBr_2 + Br_2 + 2H_2O$

575. $MnO_2 + 4HI \rightarrow MnI_2 + I_2\uparrow + 2H_2O$

576. $4HF + SiO_2 \rightarrow SiF_4\uparrow + 2H_2O$

577. $CaF_{2(r¾n)} + H_2SO_{4(®)} \rightarrow CaSO_4 + 2HF\uparrow$

578. $NaCl_{(r¾n)} + H_2SO_{4(®)} \xrightarrow{250^0} NaHSO_4 + HCl\uparrow$

579. $2NaCl_{(r¾n)} + H_2SO_{4(®)} \xrightarrow{>250^0} Na_2SO_4 + 2HCl\uparrow$

580. $2NaBr\ (k) + 2H_2SO_4\ (®) \rightarrow Br_2\uparrow + SO_2\uparrow + 2H_2O + Na_2SO_4$

581. $8NaI(k) + 5H_2SO_4\ (®) \rightarrow 4I_2\uparrow + H_2S\uparrow + 4H_2O + 4Na_2SO_4$

582. $PBr_3 + 3H_2O \rightarrow 3HBr + H_3PO_3$

583. $PI_3 + 3H_2O \rightarrow 3HI + H_3PO_3$

584. $H_2S + I_2 \rightarrow S\downarrow + 2HI$

585. $NaCl + AgNO_3 \rightarrow AgCl\downarrow + NaNO_3$

586. $NaBr + AgNO_3 \rightarrow AgBr\downarrow + NaNO_3$

587. $NaI + AgNO_3 \rightarrow AgI\downarrow + NaNO_3$

588. $2SO_2 + O_2 \quad V_2O_5\ 300^0C \quad 2SO_3$

589. $CH_4 + 2O_2 \xrightarrow{t^o} CO_2 + 2H_2O$

590. $O_3 + 2KI + H_2O \longrightarrow I_2 + 2KOH + O_2$ (oxi không có)

591. $2Ag + O_3 \longrightarrow Ag_2O + O_2$ (oxi không có phản ứng)

592. $2H_2S + 3O_2 \xrightarrow{t^0} 2H_2O + 2SO_2$ (dư ôxi, đốt cháy)

593. $2H_2S + O_2 \xrightarrow{t^0 t\text{thấp}} 2H_2O + 2S\downarrow$

594. $H_2S + 4Cl_2 + 4H_2O \longrightarrow 8HCl + H_2SO_4$

595. $H_2S + Cl_2 \longrightarrow 2\ HCl + S$ (khí clo gặp khí H_2S)

596. $H_2S + NaOH \xrightarrow{1:1} NaHS + H_2O$

597. $H_2S + 2NaOH \xrightarrow{1:2} Na_2S + 2H_2O$

598. $SO_2 + 2\ NaOH \xrightarrow{1:2} Na_2SO_3 + H_2O$

599. $SO_2 + NaOH \xrightarrow{1:1} NaHSO_3$

600. $H_2SO_4 \longrightarrow 2H^+ + SO_4^{2-}$ là quì tím hoá màu đỏ.

601. $H_2SO_4 + Fe \longrightarrow FeSO_4 + H_2\uparrow$

602. $H_2SO_4 + NaOH \longrightarrow NaHSO_4 + H_2O$

603. $H_2SO_4 + 2NaOH \longrightarrow Na_2SO_4 + 2H_2O$

604. $H_2SO_4 + CuO \longrightarrow CuSO_4 + H_2O$

605. $H_2SO_4 + BaCl_2 \longrightarrow BaSO_4\downarrow + 2\ HCl$

606. $H_2SO_4 + Na_2SO_3 \longrightarrow Na_2SO_4 + H_2O + SO_2\uparrow$

607. $H_2SO_4 + CaCO_3 \longrightarrow CaSO_4 + H_2O + CO_2\uparrow$

608. $2Fe + 6\ H_2SO_4 \xrightarrow{t^0} Fe_2(SO_4)_3 + 3SO_2 + 6H_2O$

609. $Cu + 2\ H_2SO_4 \xrightarrow{t^0} CuSO_4 + SO_{2+}\ 2H_2O$

610. $2H_2SO_{4(đ)} + C \xrightarrow{t^0} CO_2 + 2SO_2 + 2H_2O$

611. $2H_2SO_{4(đ)} + S \xrightarrow{t^0} 3SO_2 + 2H_2O$

612. $FeO + H_2SO_{4\ (đ)} \xrightarrow{t^0} Fe_2(SO_4)_3 + SO_2 + 4H_2O$

613. $2HBr + H_2SO_{4\ (đ)} \xrightarrow{t^0} Br_2 + SO_2 + 2H_2O$

614. $C_{12}H_{22}O_{11} + H_2SO_{4(đ)} \longrightarrow 12C + H_2SO_4.11H_2O$

615. $S + O_2 \xrightarrow{t^0} SO_2$

616. $Na_2SO_3 + H_2SO_{4(đ)} \xrightarrow{t^0} Na_2SO_4 + H_2O + SO_2\uparrow$

617. $Cu + 2H_2SO_{4(đ)} \xrightarrow{t^0} CuSO_4 + 2H_2O + SO_2\uparrow$

618. $4FeS_2 + 11O_2 \xrightarrow{t^0} 2Fe_2O_3 + 8SO_2$

619. $2SO_2 + O_2 \longrightarrow 2\ SO_3$ (xúc tác V_2O_5, t^0)

620. $4FeS_2 + 11O_2 \xrightarrow{t^o} 2Fe_2O_3 + 8SO_2$

621. $SO_3 + H_2O \longrightarrow H_2SO_4$

622. $2SO_2 + O_2 \xrightarrow{V_2O_5, t^o} 2SO_3$

623. $2NaCl + H_2O \xrightarrow{\text{điện phân}} H_2 + Cl_2 + 2NaOH$

624. $2NaHCO_3 \xrightarrow{t^0} Na_2CO_3 + Na_2CO_3 + CO_2\uparrow + H_2O$

625. $NaHCO_3 + HCl = NaCl + CO_2\uparrow + H_2O$

626. $NaHCO_3 + NaOH = Na_2CO_3 + H_2O$

627. $Na_2CO_3 + 2HCl = 2NaCl + CO_2\uparrow + H_2O$

628. $4M + 10HNO_3 = 4M(NO_3)_2 + 3H_2O + NH_4NO_3$

629. $Ca(OH)_2 + Na_2CO_3 = CaCO_3\downarrow + 2NaOH$

630. $CaCO_3 + 2HCl = CaCl_2 + H_2O + CO_2\uparrow$

631. $CaCO_3 + 2CH_3COOH = Ca(CH_3COO)_2 + H_2O + CO_2\uparrow$

632. $Ca(HCO_3)_2 \xrightarrow{t^0} CaCO_3\downarrow + H_2O + CO_2\uparrow$

633. $Ca(HCO_3)_2 + Ca(OH)_2 = 2CaCO_3\downarrow + 2H_2O$

634. $CaSO_4 + NaCO_3 = CaSO_3\downarrow + Na_2SO_4$

635. $Ca(HCO_3)_2 + Na_2CO_3 = CaCO_3\downarrow + 2NaHCO_3$

636. $Al(OH)_3 + 3HCl = AlCl_3 + 3H_2O$

637. $HAlO_2.H_2O + OH^- = AlO^-_2 + 2H_2O$

638. $Al(OH)_3 + NaOH = NaAlO_2 + 2H_2O$

639. $AlCl_3 + 3NH_4OH = Al(OH)_3\downarrow + 3NH_4Cl$

640. $3CaO + P_2O_5 = Ca_3(PO_4)_2$

641. $3Fe + 4H_2O \xrightarrow{<570^0C} Fe_3O_4 + 4H_2.$

642. $Fe + H_2O \xrightarrow{>570^0C} FeO + H_2.$

643. $3FeO + 10HNO_{3\ đặc} \xrightarrow{t^0} 3Fe(NO_3)_3 + NO + 5H_2O.$

644. $2FeO + 4H_2SO_{4\ đặc} \xrightarrow{t^0} Fe_2(SO_4)_3 + SO_2 + 4H_2O.$

645. $FeO + H_2SO_{4\ loãng} \longrightarrow FeSO_4 + H_2O.$

646. $FeO + 2HCl \longrightarrow FeCl_2 + H_2O.$

647. $FeO + CO \xrightarrow{t^0} Fe + CO_2.$

648. $Fe(OH)_2 + 2HCl \longrightarrow FeCl_2 + 2H_2O.$

649. $Fe(OH)_2 + H_2SO_4 \longrightarrow FeSO_4 + 2H_2O.$

650. $4Fe(OH)_2 + O_2 + 2H_2O \longrightarrow 4Fe(OH)_3.$

651. $FeCl_2 + 2NaOH \longrightarrow Fe(OH)_2 + 2NaCl.$

652. $2FeCl_2 + Cl_2 \longrightarrow 2FeCl_3.$

653. $10FeSO_4 + 2KMnO_4 + 8H_2SO_4 \longrightarrow 5Fe_2(SO_4)_3 + K_2SO_4 + 2MnSO_4 + 8H_2O.$

654. $3Fe_2O_3 + CO \xrightarrow{t^0} 2Fe_3O_4 + CO_2.$

655. $Fe_2O_3 + CO \xrightarrow{t^0} 2FeO + CO_2.$

656. $Fe_2O_3 + 3CO \xrightarrow{t^0} 2Fe + 3CO_2.$

657. $Fe_2O_3 + 3H_2SO_{4\ loãng} \longrightarrow Fe_2(SO_4)_3 + 3H_2O.$

658. $Fe_2O_3 + 6HCl \longrightarrow 2FeCl_3 + 3H_2O.$

659. $Fe_2O_3 + 3H_2SO_4 \longrightarrow Fe_2(SO_4)_3 + 3H_2O.$

660. $FeCl_3 + 3NaOH \longrightarrow Fe(OH)_3 + 3NaCl.$

661. $2FeCl_3 + Fe \longrightarrow 3FeCl_2.$

662. $2FeCl_3 + Cu \longrightarrow 2FeCl_2 + CuCl_2.$

663. $2FeCl_3 + 2KI \longrightarrow 2FeCl_2 + 2KCl + I_2.$

664. $2Fe(OH)_3 \xrightarrow{t^0} Fe_2O_3 + 3H_2O.$

665. $2Fe(OH)_3 + 3H_2SO_4 \longrightarrow Fe_2(SO_4)_3 + 6H_2O.$

666. $Fe(OH)_3 + 3HCl \longrightarrow FeCl_3 + 3H_2O.$

667. $2FeS_2 + 14H_2SO_4 \longrightarrow Fe_2(SO_4)_3 + 15SO_2 + 14H_2O.$

668. $4FeS_2 + 11O_2 \xrightarrow{t^0} 2Fe_2O_3 + 8SO_2.$

669. $4Cr + 3O_2 \xrightarrow{t^0} 2Cr_2O_3.$

670. $2Cr + 3Cl_2 \xrightarrow{t^0} 2CrCl_3.$

671. $2Cr + 3S \xrightarrow{t^0} Cr_2S_3.$

672. $Cr + 2HCl \longrightarrow CrCl_2 + H_2$.

673. $Cr + H_2SO_4 \longrightarrow CrSO_4 + H_2$.

674. $2Cr + 3SnCl_2 \longrightarrow 2CrCl_3 + 3Sn$.

675. $4Cr(OH)_2 + O_2 + 2H_2O \xrightarrow{t^o} 4Cr(OH)_3$.

676. $Cr(OH)_2 + 2HCl \longrightarrow CrCl_2 + 2H_2O$.

677. $Cr(OH)_3 + NaOH \longrightarrow Na[Cr(OH)_4]$ (*hay* $NaCrO_2$).

678. $Cr(OH)_3 + 3HCl \longrightarrow CrCl_3 + 3H_2O$.

679. $2Cr(OH)_3 \xrightarrow{t^o} Cr_2O_3 + 3H_2O$.

680. $2CrO + O_2 \xrightarrow{>100^0 C} 2Cr_2O_3$.

681. $CrO + 2HCl \longrightarrow CrCl_2 + H_2O$.

682. $Cr_2O_3 + 3H_2SO_4 \longrightarrow Cr_2(SO_4)_3 + 3H_2O$.

683. $2Cr_2O_3 + 8NaOH + 3O_2 \longrightarrow 4Na_2CrO_4 + 4H_2O$.

684. $Cr_2O_3 + 2Al \xrightarrow{t^0} 2Cr + Al_2O_3$.

685. $CrO_3 + H_2O \longrightarrow H_2CrO_4$.

686. $2CrO_3 + H_2O \longrightarrow H_2Cr_2O_7$.

687. $4CrO_3 \xrightarrow{420^0 C} 2Cr_2O_3 + 3O_2$.

688. $2CrO_3 + 2NH_3 \longrightarrow Cr_2O_3 + N_2 + 3H_2O$.

689. $4CrCl_2 + O_2 + 4HCl \longrightarrow 4CrCl_3 + 2H_2O$.

690. $CrCl_2 + 2NaOH \longrightarrow Cr(OH)_2 + 2NaCl$.

691. $2CrCl_2 + Cl_2 \longrightarrow 2CrCl_3$.

692. $2CrCl_3 + Zn \longrightarrow ZnCl_2 + 2CrCl_2$.

693. $CrCl_3 + 3NaOH \longrightarrow Cr(OH)_3 + 3NaCl$.

694. $2CrCl_3 + 3Cl_2 + 16NaOH \longrightarrow 2Na_2CrO_4 + 12NaCl + 8H_2O$.

695. $2NaCrO_2 + 3Br_2 + 8NaOH \longrightarrow 2Na_2CrO_4 + 6NaBr + 4H_2O$

696. $2Na_2Cr_2O_7 + 3C \longrightarrow 2Na_2CO_3 + CO_2 + 2Cr_2O_3$.

697. $Na_2Cr_2O_7 + S \longrightarrow Na_2SO_4 + Cr_2O_3$.

698. $Na_2Cr_2O_7 + 14HCl \longrightarrow 2CrCl_3 + 2NaCl + 3Cl_2 + 7H_2O$.

699. $K_2Cr_2O_7 + 3H_2S + 4H_2SO_4 \longrightarrow Cr_2(SO_4)_3 + 3S + K_2SO_4 + 7H_2O$.

700. $K_2Cr_2O_7 + 3K_2SO_3 + 4H_2SO_4 \longrightarrow Cr_2(SO_4)_3 + 4K_2SO_4 + 4H_2O$.

701. $K_2Cr_2O_7 + 6KI + 7H_2SO_4 \longrightarrow Cr_2(SO_4)_3 + 4K_2SO_4 + 3I_2 + 7H_2O$.

702. $K_2Cr_2O_7 + 6FeSO_4 + 7H_2SO_4 \longrightarrow 3Fe_2(SO_4)_3 + Cr_2(SO_4)_3 + K_2SO_4 + 7H_2O$.

703. $(NH_4)_2Cr_2O_7 \xrightarrow{t^0} Cr_2O_3 + N_2 + 4H_2O$.

704. $2Na_2Cr_2O_7 \xrightarrow{t^0} 2Na_2O + 2Cr_2O_3 + 3O_2$.

705. $2Na_2CrO_4 + H_2SO_4 \longrightarrow Na_2Cr_2O_7 + Na_2SO_4 + H_2O$.

706. $Cu + Cl_2 \xrightarrow{t^0} CuCl_2$.

707. $2Cu + O_2 \xrightarrow{t^0} 2CuO$.

708. $Cu + S \xrightarrow{t^0} CuS$.

709. $Cu + 2H_2SO_{4\,đặc} \longrightarrow CuSO_4 + SO_2 + 2H_2O$.

710. $Cu + 4HNO_{3\,đặc} \longrightarrow Cu(NO_3)_2 + 2NO_2 + 2H_2O$.

711. $3Cu + 8HNO_{3\,loãng} \longrightarrow 3Cu(NO_3)_2 + 2NO + 4H_2O$.

712. $Cu + 2AgNO_3 \longrightarrow Cu(NO_3)_2 + 2Ag$.

713. $Cu + 2FeCl_3 \longrightarrow CuCl_2 + 2FeCl_2$.

714. $3Cu + 8NaNO_3 + 4H_2SO_4 \longrightarrow 3Cu(NO_3)_2 + 4Na_2SO_4 + 2NO + 4H_2O$.

715. $2Cu + 4HCl + O_2 \longrightarrow 2CuCl_2 + 2H_2O$.

716. 89. $CuO + H_2SO_4 \longrightarrow CuSO_4 + H_2O$.

717. $CuO + 2HCl \longrightarrow CuCl_2 + H_2O$.

718. $CuO + H_2 \xrightarrow{t^0} Cu + H_2O$.

719. $CuO + CO \xrightarrow{t^0} Cu + CO_2$.

720. $3CuO + 2NH_3 \xrightarrow{t^0} N_2 + 3Cu + 3H_2O$.

721. $CuO + Cu \xrightarrow{t^0} Cu_2O$.

722. $Cu_2O + H_2SO_{4\ loãng} \longrightarrow CuSO_4 + Cu + H_2O$.

723. $Cu(OH)_2 + 2HCl \longrightarrow CuCl_2 + 2H_2O$.

724. $Cu(OH)_2 + H_2SO_4 \longrightarrow CuSO_4 + 2H_2O$.

725. $Cu(OH)_2 \xrightarrow{t^0} CuO + H_2O$.

726. $Cu(OH)_2 + 4NH_3 \longrightarrow [Cu(NH_3)_4]^{2+} + 2OH^-$.

727. $2Cu(NO_3)_2 \xrightarrow{t^0} 2CuO + 2NO_2 + 3O_2$.

728. $\xrightarrow{\text{điện phân dung dịch}} Cu + Cl_2$.

729. $2Cu(NO_3)_2 + 2H_2O \xrightarrow{\text{điện phân dung dịch}} 2Cu + 4HNO_3 + O_2$.

730. $2CuSO_4 + 2H_2O \xrightarrow{\text{điện phân dung dịch}} 2Cu + 2H_2SO_4 + O_2$.

731. $CuCO_3.Cu(OH)_2 \xrightarrow{t^0} 2CuO + CO_2 + H_2O$.

732. $CuS + 2AgNO_3 \longrightarrow 2AgS + Cu(NO_3)_2$.

733. $CuS + 4H_2SO_{4\ đặc} \longrightarrow CuSO_4 + 4SO_2 + 4H_2O$.

734. $2Ni + O_2 \xrightarrow{500^0 C} 2NiO$.

735. $Ni + Cl_2 \xrightarrow{t^0} NiCl_2$.

736. $Zn + O_2 \xrightarrow{t^0} 2ZnO$.

737. $Zn + S \xrightarrow{t^0} ZnS$.

738. $Zn + Cl_2 \xrightarrow{t^0} ZnCl_2$.

739. $2Pb + O_2 \xrightarrow{t^0} 2PbO$.

740. $Pb + S \xrightarrow{t^0} PbS$.

741. $3Pb + 8HNO_{3\ loãng} \longrightarrow 3Pb(NO_3)_2 + 2NO + 4H_2O$.

742. $Sn + 2HCl \longrightarrow SnCl_2 + H_2$.

743. $Sn + O_2 \xrightarrow{t^0} SnO_2$.

744. $5Sn^{2+} + 2MnO_4^- + 16H^+ \rightarrow 5Sn^{4+} + 2Mn^{2+} + 8H_2O$.

745. $Ag + 2HNO_{3(đặc)} \longrightarrow AgNO_3 + NO_2 + H_2O$.

746. $2Ag + 2H_2S + O_2 \longrightarrow 2Ag_2S + 2H_2O$.

747. $2Ag + O_3 \longrightarrow Ag_2O + O_2$.

748. $Ag_2O + H_2O_2 \longrightarrow 2Ag + H_2O + O_2$.

749. $2AgNO_3 \xrightarrow{t^0} 2Ag + 2NO_2 + O_2$.

750. $4AgNO_3 + 2H_2O \xrightarrow{\text{điện phân dung dịch}} 4Ag + 4HNO_3 + O_2$.

751. $Au + HNO_3 + 3HCl \longrightarrow AuCl_3 + 2H_2O + NO$.

752. $Fe + 6HNO_{3\ đặc} \longrightarrow Fe(NO_3)_3 + 3NO_2 + 3H_2O$.

753. $2Fe + 6H_2SO_{4\ đặc} \xrightarrow{t^0} Fe_2(SO_4)_3 + 3SO_2 + 6H_2O$.

754. $Fe + 4HNO_{3\ loãng} \longrightarrow Fe(NO_3)_3 + NO + 2H_2O$.

755. $3Fe + 2O_2 \xrightarrow{t^0} Fe_3O_4$.

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756. $2C_3H_8O_3 + Cu(OH)_2$ ----> $(C_3H_7O_3)_2Cu + 2H_2O$

757. $2C_6H_{12}O_6 + Cu(OH)_2$ ----> $(C_6H_{11}O_6)_2Cu + 2H_2O$

758. $2C_{12}H_{22}O_{11} + Cu(OH)_2 \text{ ----> } (C_{12}H_{21}O_{11})_2Cu + 2H_2O$

759. $C_3H_5(OH)_3 + HO\text{-}NO_2 \text{ -> } C_3H_5(ONO_2)_3 + 3H_2O$

760. $(CH_3)_2CH\text{-}CH_2\text{-}CH_2\text{-}OH + H_2SO_4 \text{ ----> } (CH_3)_2CH\text{-}CH_2\text{-}CH_2\text{-}OH + H_2O$

761. $2C_nH_{2n+1}OH \text{ ----}(H_2SO_{4đ}, 140^oC)\text{----> } C_nH_{2n+1}OC_nH_{2n+1} + H_2O$

762. $HCOOR' + 2AgNO_3 + 2NH_3 + H_2O \rightarrow HOCOOR' + 2Ag\downarrow + 2NH_4NO_3$

763. $CH_2{=}CHCOOCH_3 + Br_2 \rightarrow CH_2Br\text{ - }CHBrCOOCH_3$

764.

$$nCH_2{=}\underset{\underset{CH_3}{|}}{CH}-COOCH_3 \xrightarrow{xt,\ t^o,\ p} \left(\underset{\underset{COOCH_3}{|}}{\overset{\overset{CH_3}{|}}{CH}}-CH_2\right)_n$$

metyl metacrylat — poli(metyl metacrylat) (PMM)

765. $RCOOR' \xrightarrow[2)\ H_3O^+]{1)\ LiAlH_4} RCH_2OH + R'OH$

766. $RCOOH + R'OH \underset{}{\overset{H_2SO_4đ,t^0}{\rightleftharpoons}} RCOOR' + H_2O$

767. $RCOOH + CH{\equiv}CH \rightarrow RCOOCH{=}CH_2$

768. $[CH_3(CH_2)_{16}COO]_3C_3H_5 + 3H_2O \underset{t^o}{\overset{H^+}{\rightleftharpoons}} 3CH_3(CH_2)_{16}COOH + C_3H_5(OH)_3$

769. $(C_{17}H_{33}COO)_3C_3H_5 + 3H_2 \xrightarrow[175-195^0C]{Ni} (C_{17}H_{35}COO)_3C_3H_5$

770. $[CH_3(CH_2)_{16}COO]_3C_3H_5 + 3NaOH \xrightarrow{t^0} 3[CH_3(CH_2)_{16}COONa] + C_3H_5(OH)_3$

771. $C_nH_{2n}O_2 + \dfrac{3n-2}{2} O_2 \rightarrow nCO_2 + n\,H_2O$

772.

$$R_1{-}\overset{\overset{O}{\|}}{C}{-}O{-}R{-}O{-}\overset{\overset{O}{\|}}{C}{-}R_2 + 2NaOH \longrightarrow R_1COONa + R_2COONa + R(OH)_2$$

773.

$$R_1{-}O{-}\overset{\overset{O}{\|}}{C}{-}R{-}\overset{\overset{O}{\|}}{C}{-}O{-}R_2 + 2NaOH \longrightarrow R_1OH + R_2OH + R(COONa)_2$$

$$RCOOH + R'OH \underset{}{\overset{H_2SO_4đ,t^0}{\rightleftharpoons}} RCOOR' + H_2O$$

774. $(RCOO)_3C_3H_5 + 3\,NaOH \rightarrow 3RCOONa + C_3H_5(OH)_3$

775. $2ROH + Na \rightarrow 2RONa + H_2\uparrow$

776. $2C_3H_5(OH)_3 + Cu(OH)_2 \rightarrow [C_3H_5(OH)_2O]_2Cu + H_2O$

777. $C_2H_5OH + HBr \xrightarrow{t^o} C_2H_5Br + H_2O$

778. $2C_2H_5OH \xrightarrow{t^o} C_4H_6 + H_2 + 2H_2O$

779. $C_nH_{2n+1}OH \xrightarrow[170^oC]{H_2SO_{4đ}} C_nH_{2n}(anken) + H_2O$

780. $2C_2H_5OH \xrightarrow[140^oC]{H_2SO_{4đ}} C_2H_5\text{ - }O\text{ - }C_2H_5 + H_2O$

781.

$$R{-}\underset{\underset{OH}{|}}{CH}{-}R' + O_2 \xrightarrow[t^o]{Cu} R{-}\overset{\overset{O}{\|}}{C}{-}R' + H_2O$$

782. $CH_3 - CH_2 - OH + CuO \xrightarrow{t^o} CH_3 - CHO + Cu + H_2O$

783. $CH_3 - CH\,OH - CH_3 + CuO \xrightarrow{t^o} CH_3 - CO - CH_3 + Cu + H_2O$

784. $C_6H_5OH + NaOH \rightarrow C_6H_5ONa + H_2O$

785. $NaOH\ (t^ocao,\ p\ cao) \rightarrow C_6H_5ONa + CO_2 + H_2O \rightarrow C_6H_5OH$

786. $C_nH_{2n+2} + mX_2 \xrightarrow{t^o, ás'kt} C_nH_{2n+2-m}X_m + mHX\uparrow$

787. $CH_3{-}CH_3 \xrightarrow{xt, t^oC} CH_2{=}CH_2 + H_2\uparrow$

788. $C_nH_{2n+2} \xrightarrow{cracking} C_mH_{2m} + C_xH_{2x+2}$

789. $C_nH_{2n+2} + (n+1)Cl_2 \xrightarrow{t^o, ás'cuctim} nC + 2(n+1)HCl$

790. $C_nH_{2n+2} + (3n+1)/2\ O_2 \xrightarrow{t^oC} n\ CO_2 + (n+1)H_2O$

791. $C_2H_5{-}Cl + 2Na + Cl{-}CH_3 \longrightarrow C_2H_5{-}CH_3 + 2NaCl$

792. $R_1(COONa)_m + mNaOH_{(r)} \xrightarrow{CaO, t^oC} R_1H_m + mNa_2CO_3$

793. $CH_3COONa + NaOH_r \xrightarrow{CaO, t^oC} CH_4\uparrow + Na_2CO_3$ $Al_4C_3 + 12\ H_2O \longrightarrow 4Al(OH)_3\downarrow + 3CH_4\uparrow$

794. $CH_3\text{-}CH(CH_3)\text{-}CH_2\text{-}CH_3 + Cl_2 \xrightarrow[1:1]{as} CH_3\text{-}CCl\text{-}CH_2\text{-}CH_3$

795. $CH_2{=}CH_2 + Br_2 \rightarrow Br - CH_2 - CH_2 - Br$

796. $CH_2{=}CH_2 + HCl \rightarrow CH_3CH_2Cl$

797. $CH_2{=}CH_2 + H\text{-}OH \xrightarrow{t^o} HCH_2 - CH_2OH$

798. $nCH_2{=}CH_2 \xrightarrow[100atm]{peoxit, 100-300^oC} [-\ CH_2 - CH_2-\ ]_n$

799. $C_nH_{2n} + \frac{3n}{2}O_2 \xrightarrow{t^o} nCO_2 + nH_2O$

800. $3CH_2 = CH_2 + 4H_2O + 2KMnO_4 \rightarrow 3HO - CH_2 - CH_2 - OH + 2MnO_2\downarrow + 2KOH$

801. $CH_3CH_2OH \xrightarrow{H_2SO_4, 170^oC} CH_2{=}CH_2 + H_2O$

802. $CH_3 - CH = CH_2 + H - Cl \rightarrow \begin{cases} CH_3 - CHCl - CH_3 & \text{(sp chính)} \\ CH_3 - CH_2 - CH_2Cl & \text{(sp phụ)} \end{cases}$

803. $CH_2 = CH - CH = CH_2 + 2H_2 \xrightarrow{Ni, t^o} CH_3 - CH_2 - CH_2 - CH_3$

804. $CH_2{=}CH{-}CH{=}CH_2 + HBr\,(dd) \xrightarrow{40^oC} CH_3{-}CH = CH\text{-}CH_2Br$

805. $C_nH_{2n-2} + \frac{3n-1}{2}O_2 \rightarrow nCO_2 + (n-1)\,H_2O$

806. $CH_3 - CH_2 - CH_2{-}CH_3 \xrightarrow{xt, t^o} CH_2{=}CH{-}CH{=}CH_2 + 2H_2$

807. $CH \equiv CH + HCl \xrightarrow[150-200^oC]{HgCl_2} CH_2 = CH - Cl$:**vinyl clorua**

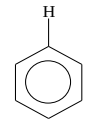
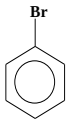
808. $CH \equiv CH + H\text{-}OH \xrightarrow{HgSO_4} CH_2 = CH - OH \rightarrow CH_3CHO$

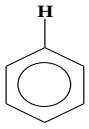
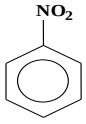
809. $2\ CH \equiv CH \xrightarrow{xt, t^0} CH{\equiv}\ C - CH = CH_2$

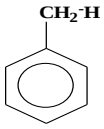
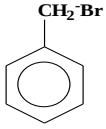
810. $CH \equiv CH + AgNO_3 + NH_3 \rightarrow CAg \equiv CAg \downarrow + 2NH_4NO_3$

811. $CaC_2 + H_2O \rightarrow Ca(OH)_2 + C_2H_2 \uparrow$

812. $2CH_4 \xrightarrow{1500^oC} C_2H_2 + 3H_2$

813.  $+ Br_2 \xrightarrow{Fe,t^0}$  $+ \quad HBr\uparrow$

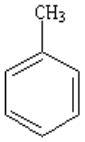
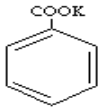
814.  $+ HNO_3$ đặc $\xrightarrow{H_2SO_4,t^o}$  $+ \quad H_2O$

815.  $+ Br_2 \xrightarrow{t^o}$  $+ HBr$

816. $C_6H_6 + 3H_2 \xrightarrow{Ni,t^o} C_6H_{12}$

817. $C_6H_6 + Cl_2 \xrightarrow{as} C_6H_6Cl_6$

818.  $+ KMnO_4 \rightarrow$ Không xảy ra

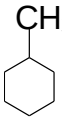
819.  $+ 2KMnO_4 \rightarrow$  $+ 2MnO_2 + KOH + H_2O$

820. $C_6H_5 - CH = CH_2 + Br_2\ (dd) \rightarrow C_6H_5\text{-}CH\ \mathbf{Br} - CH_2\mathbf{Br}$

821. $C_6H_5 - CH = CH_2 + H_2 \xrightarrow{xt,t^o,p} C_6H_5 - CH_2 - CH_3$

822. $RCOONa + NaOH\ (r) \xrightarrow[nung]{CaO} RH + Na_2CO_3$

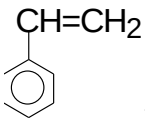
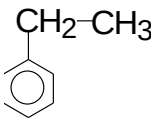
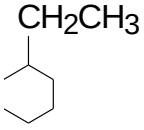
823. $CH_3[CH_2]_4CH_3 \xrightarrow{t^0,xt}$  $+ H_2$

824. $CH_3[CH_2]_5CH_3 \xrightarrow{t^0,xt}$  $+ H_2$

825. $3C_2H_2 \xrightarrow[600^0C]{C}$  benzen

826. $CH{\equiv}CH + 2[Ag(NH_3)_2]OH \rightarrow AgC{\equiv}CAg\downarrow + 4NH_3 + 2H_2O$

827. $CH_3CH_2CH_2CH_3 \xrightarrow{xt,t^0} CH_2{=}CH\text{-}CH{=}CH_2 + 2H_2$

828.  $\xrightarrow[Ni,t^0]{+H_2}$  $\xrightarrow[Ni,t^0]{+4H_2}$ 

$\xrightleftharpoons{H_2SO_4,\ t^0}$

829. $RCOOR' + H_2O \rightleftharpoons RCOOH + R'OH$

830. $RCOOR' + NaOH \xrightarrow{t^0} RCOONa + R'OH$

831. $(R\text{-}COO)_3C_3H_5 + 3NaOH \xrightarrow{t^0} 3R\text{-}COONa + C_3H_5(OH)_3$

832. $(CH_3[CH_2]_7CH{=}CH[CH_2]_7COO)_3C_3H_5 + 3H_2 \xrightarrow{Ni,\ t^0} (CH_3[CH_2]_{16}COO)_3C_3H_5$

833. $CH_2{=}CH_2 \longrightarrow (\text{-}CH_2\text{-}CH_2\text{-})_n$

834. $n\,CH_2{=}CH(Cl) \xrightarrow{t^o,xt,p} -(CH_2-CH(Cl))_n-$

835. $n\,CH_2{=}CH_2 \xrightarrow{t^0,\ xt} -(CH_2-CH_2)_n-$

836. $n\,CH_2{=}CH-CH{=}CH_2 \xrightarrow{Na} -(CH_2-CH{=}CH-CH_2)_n-$

837. $n\,CH_2(O)CH_2 \xrightarrow{t^0,\ xt} -(CH_2-CH_2-O)_n-$

838. $n\,CH_2{=}CH_2 \xrightarrow{t^o,xt,p} -(CH_2-CH_2)_n-$
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839. $n\,CH_2{=}CH(CH_3) \xrightarrow{t^o,xt,p} -(CH_2-CH(CH_3))_n-$

840. $n\,CH_2{=}CH(Cl) \xrightarrow{t^o,xt,p} -(CH_2-CH(Cl))_n-$

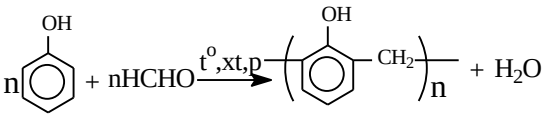
841. $n\,CH_2{=}CH(CH_3COO) \xrightarrow{t^o,xt,p} -(CH_2-CH(CH_3COO))_n-$

842. $n\,CH_2{=}CH(C_6H_5) \xrightarrow{t^o,xt,p} -(CH_2-CH(C_6H_5))_n-$

843. $n\,CH_2{=}C(CH_3)(COOCH_3) \xrightarrow{t^o,xt,p} -(CH_2-C(CH_3)(COOCH_3))_n-$
Metyl metacrylat Poli(metyl metacrylat)

844. $nCF_2=CF_2 \xrightarrow{xt,t^o,p} (-CF_2-CF_2-)_n$

845.

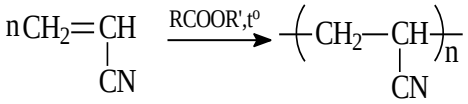


Phenol andehit fomic

846. $nH_2N(CH_2)_6NH_2 + nHOOC(CH_2)_4COOH \xrightarrow{t^o} (-HN(CH_2)_6-NH-CO-(CH_2)_4-CO-)_n + 2nH_2O$

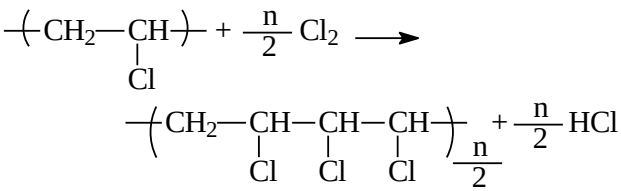
hecxametylen-điamin axit ađipic Nilon-6,6 (poli (hexametylen ađipamit))

847.



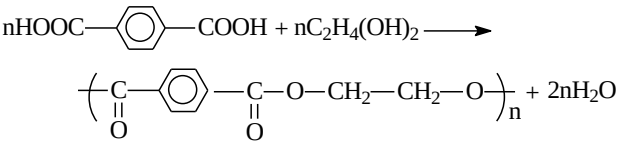
Vinyl xianua (Acrilonitrin) Tơ nitron (olon)

848.

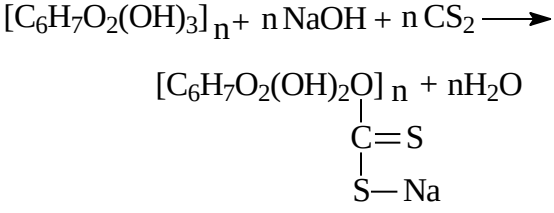


849. $nH_2N-(CH_2)_5COOH \rightarrow [-HN-(CH_2)_5CO-]_n + nH_2O$

850.

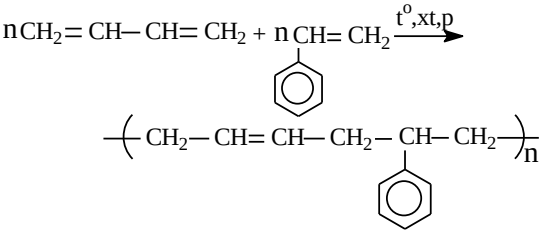


851.



852. $nH_2N-(CH_2)_6COOH \rightarrow [-HN-(CH_2)_6CO-]_n + nH_2O$

853.



854. $n\,CH_2=\underset{\underset{CH_3}{|}}{CH}-CH=CH_2 \xrightarrow{t^o,xt,p} -\left(CH_2-\underset{\underset{CH_3}{|}}{CH}=CH-CH_2\right)_n-$

855. $H_2C{=}O + H_2O \rightleftarrows H_2C(OH)_2$ (không bền)

856. $CH_3-\underset{\underset{O}{\|}}{C}-CH_3 + H-CN \rightarrow CH_3-\underset{\underset{OH}{|}}{\overset{\overset{CN}{|}}{C}}-CH_3$ (xianohiđrin)

857. $R\text{-}CHO + Br_2 + H_2O \rightarrow R\text{-}COOH + HBr$

858. $AgNO_3 + 3NH_3 + H_2O \rightarrow [Ag(NH_3)_2]OH$ (phức tan)

859. $R\text{-}CHO + 2[Ag(NH_3)_2]OH \rightarrow RCOONH_4 + 2Ag + 3NH_3 + H_2O$

860. $R(CHO)_z + 2z\ AgNO_3 + 3z\ NH_3 + z\ H_2O \rightarrow R(COONH_4)_z + 2z\ NH_4NO_3 + 2z\ Ag$

861. $HCHO + 4AgNO_3 + 6NH_3 + 2H_2O \rightarrow (NH_4)_2CO_3 + 4NH_4NO_3 + 4Ag$

862. $R(CHO)_z + 2zCu(OH)_2 + zNaOH \rightarrow R(COONa)_z + z\ Cu_2O + 3z\ H_2O$

863. $HCHO + 4Cu(OH)_2 + 2NaOH \rightarrow Na_2CO_3 + 2Cu_2O + 6H_2O$

864. $R\text{-}CH{=}O + Ag_2O \xrightarrow{ddNH_3,t^o} R\text{-}COOH + 2Ag\downarrow$

865. $R\text{-}CH{=}O + 2Cu(OH)_2 \xrightarrow{t^o} R\text{-}COOH + Cu_2O\downarrow + 2H_2O$

866. $H\text{-}CHO + 2Ag_2O \xrightarrow{ddNH_3,t^o} H_2O + CO_2 + 4Ag\downarrow$

867. $H\text{-}CH{=}O + 4Cu(OH)_2 \xrightarrow{t^o} 5H_2O + CO_2 + 2Cu_2O\downarrow$

868. $HCOOH + Ag_2O \xrightarrow{ddNH_3,t^o} H_2O + CO_2 + 2Ag\downarrow$

869. $HCOONa + Ag_2O \xrightarrow{ddNH_3,t^o} NaHCO_3 + 2Ag\downarrow$

870. $H\text{-}COOR + Ag_2O \xrightarrow{ddNH_3,t^o} ROH + CO_2 + 2Ag\downarrow$

871. $2CH_3\text{-}OH + O_2 \xrightarrow{Ag,600^0C} 2HCH{=}O + 2H_2O$

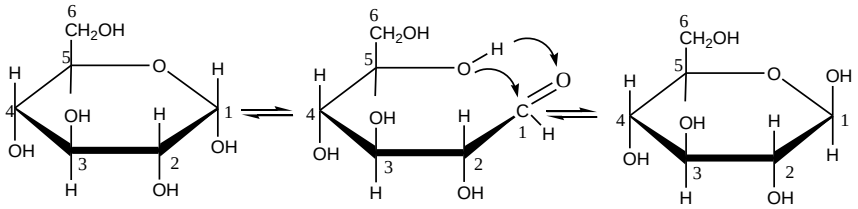
872. $CH_4 + O_2 \xrightarrow{NO,600-800^0C} HCH{=}O + H_2O$

873. $2CH_2{=}CH_2 + O_2 \xrightarrow{PdCl_2,CuCl_2} 2CH_3CH{=}O$

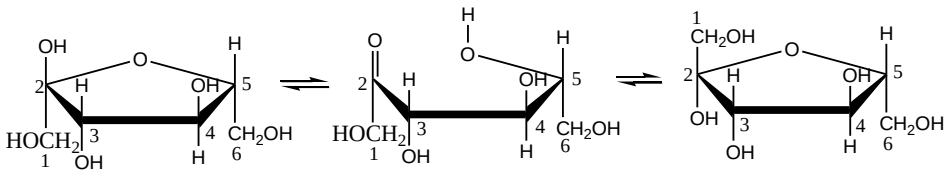
874. $(CH_3)_2CH\text{-}C_6H_5 \xrightarrow{1)O_2}$ tiểu phân trung gian $\xrightarrow{2)H_2SO_4\ 20\%} CH_3\text{-}CO\text{-}CH_3 + C_6H_5\text{-}OH$

875. $CH \equiv CH + H_2O \xrightarrow{HgSO_4,80^0C} CH_3\text{-}CHO$

876.



877.



878. $[C_6H_7O_2(OH)_3]_n + 3nHNO_3 \rightarrow [C_6H_7O_2(ONO_2)_3]_n + 3nH_2O$

879. $(C_6H_{10}O_5)_n \longrightarrow nC_6H_{12}O_6 \longrightarrow 2nCO_2 + 2nC_2H_5OH$

880. $(C_{17}H_{35}COO)_3C_3H_5 + 3\,H_2O \overset{H^+,\,t^o}{\rightleftharpoons} 3\,C_{17}H_{35}COOH + C_3H_5(OH)_3$

881. $(C_{17}H_{35}COO)_3C_3H_5 + 3\,NaOH \xrightarrow{t^o} 3\,C_{17}H_{35}COONa + C_3H_5(OH)_3$

882. $(C_{17}H_{33}COO)_3C_3H_5 + 3\,H_2 \xrightarrow{Ni,t^o} (C_{17}H_{35}COO)_3C_3H_5$

883. $2C_6H_{12}O_6 + Cu(OH)_2 \rightarrow (C_6H_{11}O_6)_2Cu + 2H_2O$

884. $CH_2OH(CHOH)_4CHO + 2AgNO_3 + 3NH_3 + H_2O \xrightarrow{t^o} CH_2OH(CHOH)_4COONH_4 + 2Ag\downarrow + 2NH_4NO_3$

885. $CH_2OH(CHOH)_4CHO + 2Cu(OH)_2 + NaOH \xrightarrow{t^o} CH_2OH(CHOH)_4COONa + Cu_2O\downarrow + 3H_2O$

886. $CH_2OH(CHOH)_4CHO + H_2 \xrightarrow{Ni,t^o} CH_2OH(CHOH)_4CH_2OH$

887. $C_6H_{12}O_6 \xrightarrow{\text{men rượu}} 2C_2H_5OH + 2CO_2$

888. $(C_6H_{10}O_5)_n + nH_2O \xrightarrow{H^+,t^o} nC_6H_{12}O_6$

889. $2C_{12}\mathbf{H_{22}}O_{11} + Cu(OH)_2 \rightarrow (C_{12}\mathbf{H_{21}}O_{11})_2Cu + 2H_2O$

890. $C_{12}H_{22}O_{11} + H_2O \xrightarrow{H^+,t^o} C_6H_{12}O_6\ (\text{Glucôzơ}) + C_6H_{12}O_6\ (\text{Fructôzơ})$

891. $(C_6H_{10}O_5)_n + nH_2O \xrightarrow{H^+,t^o} nC_6H_{12}O_6\ (\text{Glucôzơ})$

892. $[C_6H_7O_2(OH)_3]_n + 3nHNO_3 \xrightarrow{H_2SO_4\ đặc} [C_6H_7O_2(ONO_2)_3]_n + 3nH_2O$

893. $CH_3NH_2 + HCl \rightarrow CH_3NH_3^+Cl^-$ (có khói trắng)

894. $H_2N–CH_2–COOH \rightleftharpoons H_3N^+–CH_2–COO^-$

895. $H_2N–CH_2–COOH + HCl \rightarrow HOOC–CH_2–NH_3^+Cl^-$

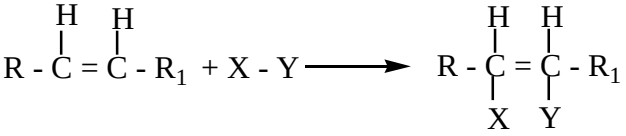
896. $H_2N–CH_2–COOH + NaOH \rightarrow H_2N–CH_2–COONa + H_2O$

897. $H_2N–CH_2–COOH + C_2H_5OH \overset{\text{HCl khí}}{\rightleftharpoons} H_2N–CH_2–COOC_2H_5 + H_2O$

898. $n\,H_2N–[CH_2]_5–COOH \xrightarrow{t^0} (–NH–[CH_2]_5–CO–)_n + nH_2O$

899. $nH_2N–[CH_2]_6–COOH \xrightarrow{t^0} (–NH–[CH_2]_6–CO–)_n + nH_2O$

900.



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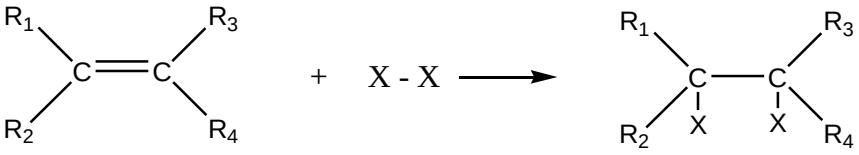

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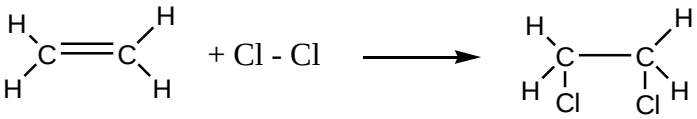
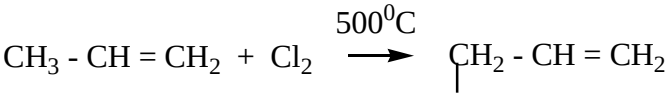


1,2-diclo etan

903.



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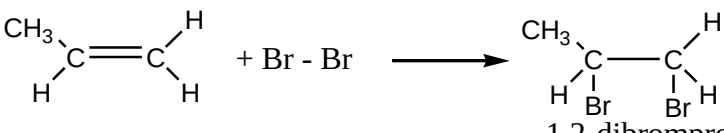
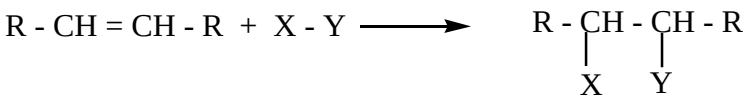


1,2-dibrompropan

905.



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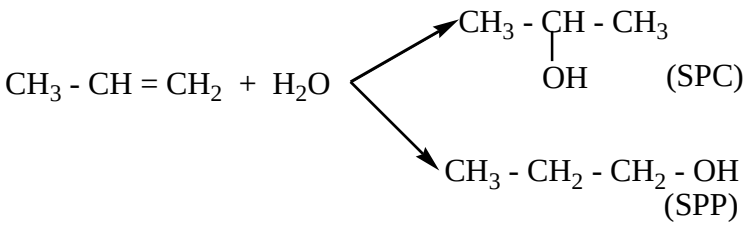

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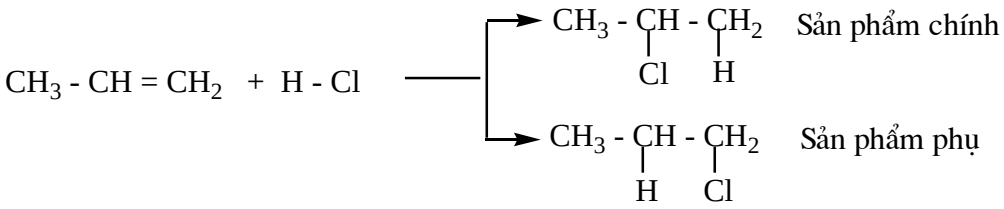

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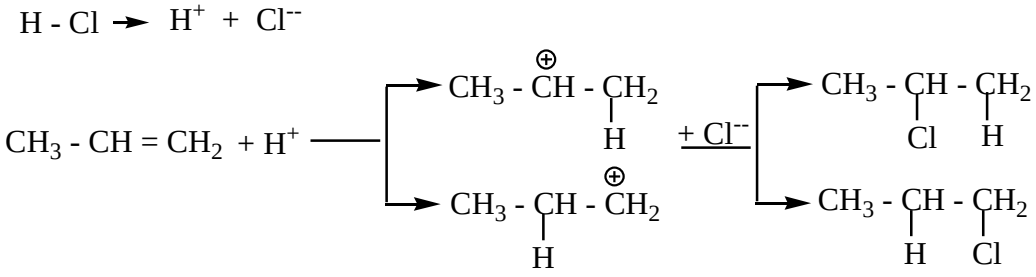

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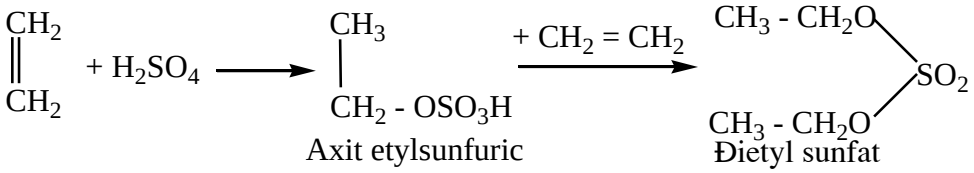

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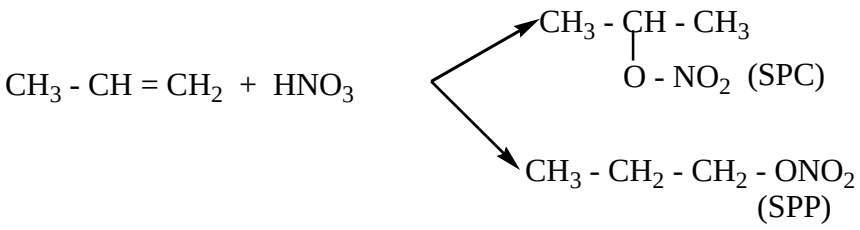

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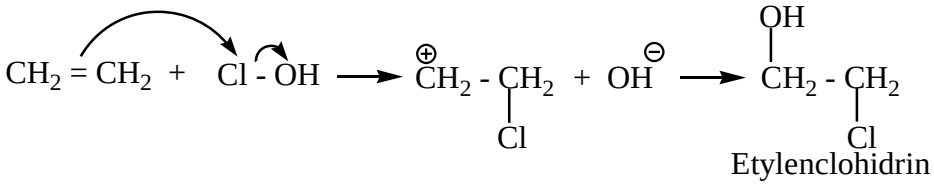

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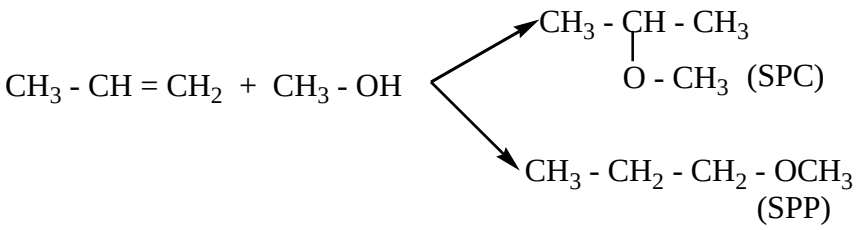

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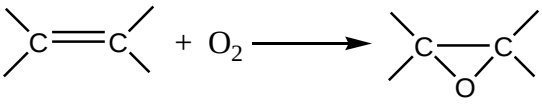
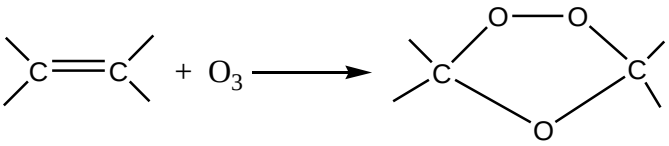


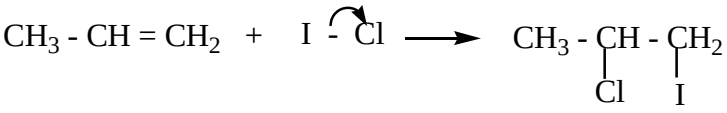
Epoxit

914.



Ozonit

915.



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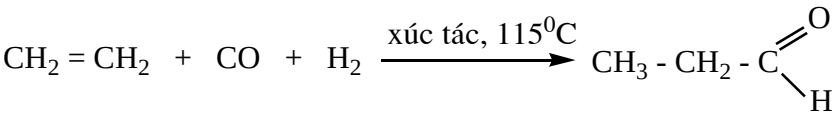

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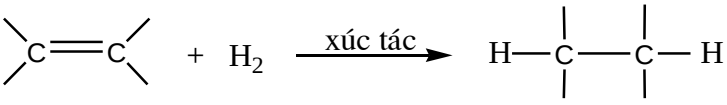

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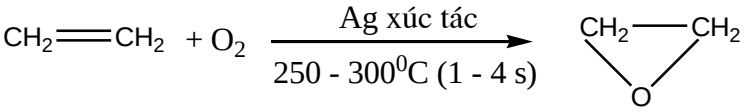

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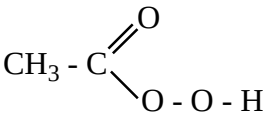

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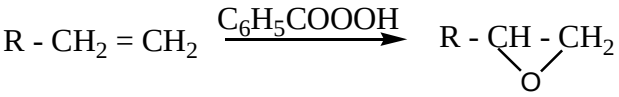

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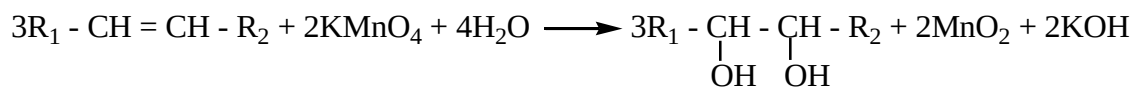

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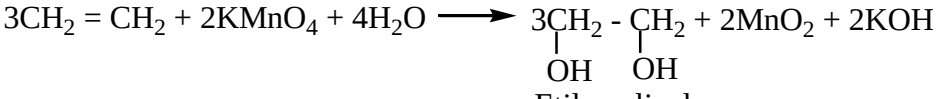
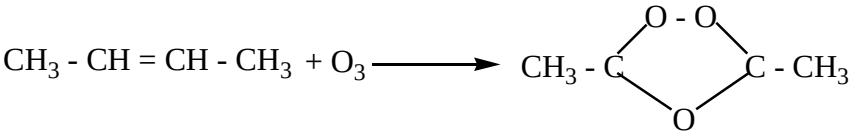


Etilen glicol

923.



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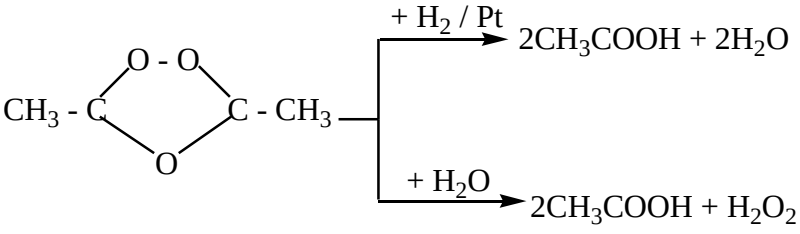
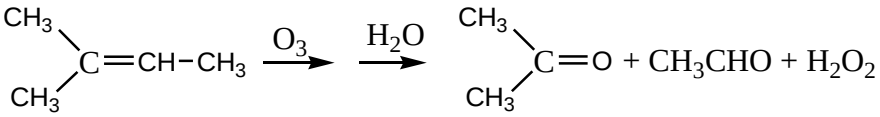


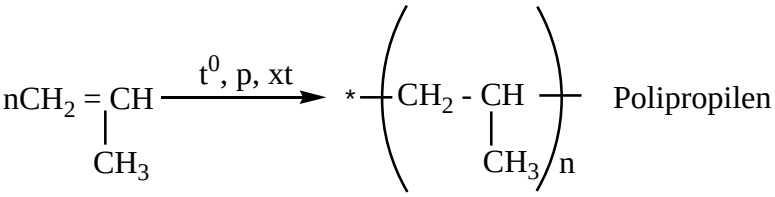
925. $CH_3 - CH_2 - CH = CH_2 \xrightarrow{O_3} CH_3 - CH_2 - CH - CH_2 \xrightarrow{H_2O} HCHO + CH_3CH_2COOH + H_2O_2$

926.



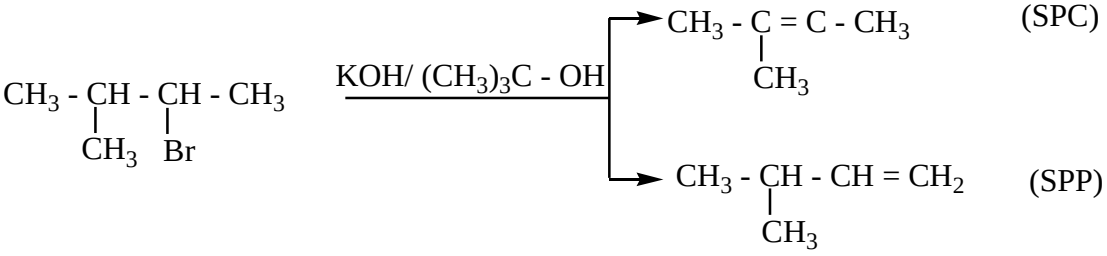
927. $n\ CH_2 = CH_2 \xrightarrow[100atm]{\text{Peoxit, } 100 - 300^0C} (CH_2 - CH_2)_n$ Polietilen

928.



929. $C_nH_{2n+1}X \xrightarrow{\text{Bazơ mạnh}} C_nH_{2n} + HX$

930.



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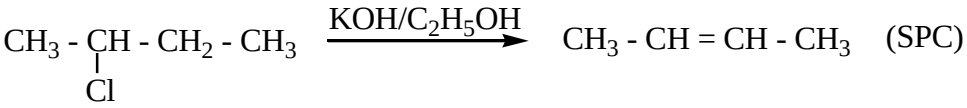

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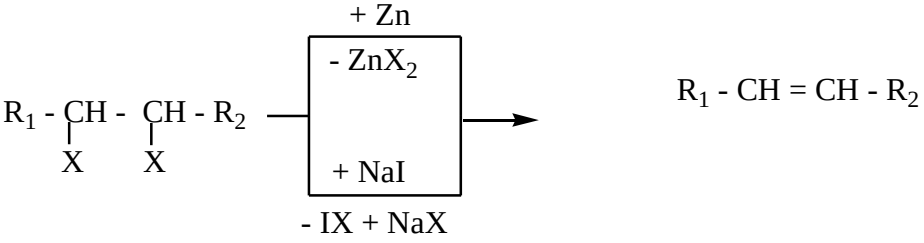


933.

$$C_nH_{2n+1}OH \xrightarrow[t = 170^0C]{\overset{Al_2O_3}{\underset{H_2SO_4\ đặc}{t > 400^0C}}} C_nH_{2n} + H_2O$$

934.

$$C_2H_2OH \xrightarrow{H_2SO_4\ (170^0C)} CH_2 = CH_2 + H_2O$$

$$CH_3 - CH_2 - \underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_2 - CH_3 \xrightarrow{H_2SO_4\ (80^0C)} CH_3 - CH = \underset{\underset{CH_3}{|}}{C} - CH_2 - CH_3 + H_2O$$

935.

$$CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - \underset{\underset{OH}{|}}{CH} - CH_3 \xrightarrow{H_2SO_4\ (t^0)} CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH = CH_2 + CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} = \underset{|}{CH} - CH_3 + H_2O$$

Kèm theo chuyển vị

936.

$$CH_3CH_2CH_2CH_2OH \xrightarrow{H_2SO_4(170^0C)} CH_3CH_2CH=CH_2 + CH_3CH=CHCH_3 + H_2O$$

Chuyển vị liên kết đôi

$$CH_3CH_2CH_2CH_2OH \xrightarrow[-H_2O]{CH_3COOH,\ H^+} CH_3CH_2CH_2CH_2OCOCH_3 \xrightarrow{t^0} CH_3CH_2CH=CH_2$$

937.

$$R_1 - C \equiv C - R_2 \xrightarrow[\text{hoặc } Pb(CH_3COO)_2,\ BaSO4]{H_2/Pd - PbCO_3} R_1 - CH = CH - R_2$$

938. $C_2H_5NH_2 + HONO \rightarrow C_2H_5OH + N_2\uparrow + H_2O$

939. $C_6H_5NH_2 + HONO + HCl \xrightarrow{0-5^0C} C_6H_5N_2^+Cl^- + 2H_2O$

940. $R(NH_2)x + xHCl \rightarrow R(NH_3Cl)x$

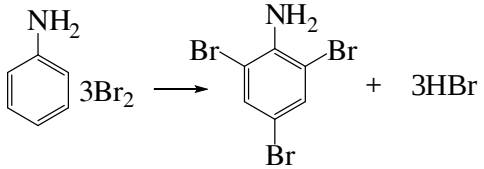
941. $3RNH_2 + FeCl_3 + 3HOH \rightarrow 3RNH_3Cl + Fe(OH)_3\downarrow$

942. $C_nH_{2n+3}N + \frac{6n+3}{4}O_2 \rightarrow nCO_2 + \frac{2n+3}{2}H_2O + \frac{1}{2}N_2$

943. $RNO_2 + 6\,[H] \xrightarrow[t^0]{Fe/HCl} RNH_2 + 2H_2O$

944. $C_6H_5NH_2 + HCl \rightarrow C_6H_5NH_3Cl$

945.



946. $C_6H_5NO_2 + 6[H] \xrightarrow[t^0]{Fe/HCl} C_6H_5NH_2 + 2H_2O$

947. $C_6H_5NH_2 + 3Br_2 \rightarrow C_6H_2Br_3NH_2\downarrow + 3HBr$

948. $H_2N\text{-}CH_2\text{-}COOH + HCl \longrightarrow {}^-Cl^+H_3N\text{-}CH_2\text{-}COOH$

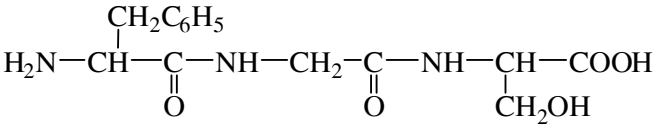
949. $H_2N\text{-}CH_2\text{-}COOH + NaOH \longrightarrow H_2N\text{-}CH_2\text{-}COONa + H_2O$

950. $H_2N\text{-}CH_2\text{-}COOH + C_2H_5OH \overset{HCl_{(k)}}{\rightleftharpoons} H_2N\text{-}CH_2\text{-}COOC_2H_5 + H_2O$

951. $H_2NCH_2COOH + C_2H_5OH \overset{H+}{\rightleftharpoons} H_2NCH_2COOC_2H_5 + H_2O$

952. $H_2NCH_2COOH + HNO_2 \rightarrow HOCH_2COOH + N_2\uparrow + H_2O$

953. $nH_2N\text{-}[CH_2]_5\text{-}COOH \xrightarrow{t^o} (\text{-}HN\text{-}[CH_2]_5\text{-}CO\text{-})_n + nH_2O$



954. Phe-Gly-Ser (tripeptit)

955. $RNH_2 + H_2O \rightarrow [RNH_3]^+OH^-$

956. $RNH_2 + HCl \rightarrow [RNH_3]^+Cl^-$

957. $RNH_2 + HONO \xrightarrow{0-5^0C} ROH + N_2\uparrow + H_2O$

958. $ArNH_2 + HNO_2 \longrightarrow ArN_2^+Cl^-$ hay ArN_2Cl

959. $RNH_2 + CH_3I \rightarrow RNHCH_3 + HI$

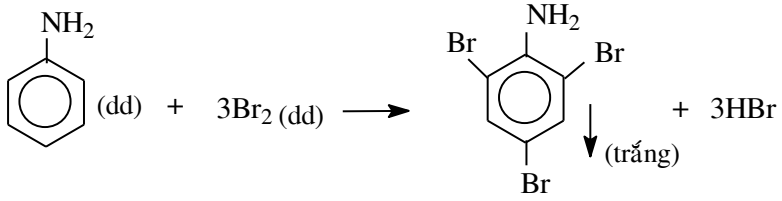
960. $RCH(NH_2)COOH + NaOH \rightarrow RCH(NH_2)COONa + H_2O$

961. $RCH(NH_2)COOH + R'OH \xrightarrow{HCl} RCH(NH_2)COOR' + H_2O$

962. $H_2N - CH(R) - COOH \rightarrow H_3N^+ - CH(R) - COO^-$

963. $nH_2N - [CH_2]_5 - COOH \xrightarrow{t} (NH - [CH_2]_5 - CO)_n + nH_2O$

964.



965. $C_xH_yO_zN_t + (x + \frac{y}{4} - \frac{z}{2})O_2 \longrightarrow xCO_2 + \frac{y}{2}H_2O + \frac{t}{2}N_2$

966. $CH_4 + Cl_2 \xrightarrow{\text{á s'}} CH_3Cl + HCl$

967. $CH_3Cl + NaOH_{loang} \xrightarrow{t^o} CH_3OH + NaCl$

968. $CH_3OH + CuO \xrightarrow{t^o} HCHO + Cu + H_2O$

969. $HCHO + 4\left[Ag(NH_3)_2OH\right] \xrightarrow{t^o} (NH_4)_2CO_3 + 4Ag + 6NH_3 + 2H_2O$

970. $HCHO + O_2 \xrightarrow{Mn^{2+}} HCOOH$

971. $HCOOH + NaOH \longrightarrow HCOONa + H_2O$

972. $2HCOONa \xrightarrow{t^o} HCHO + Na_2CO_3$

973. $2HCHO \xrightarrow{xt} CH_2(OH) - CHO$

974. $6HCHO \xrightarrow{Ca(OH)_2} C_6H_{12}O_6$

975. $CH_4 + O_2 \xrightarrow[600^oC]{\text{Các oxit nito}} HCHO + H_2O$

976. $C_2H_5 - Cl + 2Na + Cl - C_2H_5 \longrightarrow C_4H_{10} + 2NaCl$

977. $C_4H_{10} \xrightarrow[600^oC]{Cracking} CH_4 + C_3H_6$

978. $2CH_4 \xrightarrow[1500^oC]{\text{làm lạnh nhanh}} C_2H_2 + 3H_2$

979. $C_2H_2 + H_2O \xrightarrow[60-80^oC]{HgSO_4} CH_3CHO$

980. $CH_3CHO + \frac{1}{2}O_2 \xrightarrow{Mn^{2+}} CH_3COOH$

981. $CH_3COOH + NaOH \longrightarrow CH_3COONa + H_2O$

982. $CH_3COONa + NaOH \xrightarrow[t^o]{\text{vôi tôi}} CH_4 + Na_2CO_3$

983. $C_2H_2 + H_2 \xrightarrow{Pd} C_2H_4$

984. $C_2H_4 + \frac{1}{2}O_2 \xrightarrow[500^oC]{PdCl_2/CuCl_2} CH_3CHO$

985. $CH_3CHO + 2Cu(OH)_2 + NaOH \longrightarrow CH_3COONa + Cu_2O + 3H_2O$

986. $C_3H_7 - CH(OH) - SO_3Na + NaOH \longrightarrow C_3H_7CHO + H_2O + Na_2SO_3$

987. $C_3H_7CHO + H_2 \xrightarrow{Ni} C_3H_7CH_2OH$

988. $C_2H_4 + H_2O \xrightarrow[280^oC]{H^+} C_2H_5OH$

989. $C_2H_5OH + O_2 \xrightarrow{\text{men giấm}} CH_3COOH + H_2O$

990. $2CH_3COOH + Ca \longrightarrow (CH_3COO)_2Ca + H_2\uparrow$

991. $(CH_3COO)_2Ca \xrightarrow{t^o} CH_3 - C(=O) - CH_3 + CaCO_3$

992. $CH_3 - C(OH) - CH_3 \xrightarrow{xt} CH_3 - C(=O) - CH_3 + H_2O$

993. $CH_3COOC_2H_5 + H_2O \underset{}{\overset{H_2SO_4\ đặc,\ t^0}{\rightleftharpoons}} C_2H_5OH + CH_3COOH$

994. $CH_3COOC_2H_5 + NaOH \xrightarrow{t^0} CH_3COONa + C_2H_5OH$

995. $CH_3COOH + CH{\equiv}CH \xrightarrow{t^0,\ xt} CH_3COOCH{=}CH_2$

996. $(C_{17}H_{35}COO)_3C_3H_5 + 3H_2O \underset{}{\overset{H^+,\ t^0}{\rightleftharpoons}} 3C_{17}H_{35}COOH + C_3H_5(OH)_3$

tristearin — axit stearic — glixerol

997. $(RCOO)_3C_3H_5 + 3NaOH \xrightarrow{t^0} 3RCOONa + C_3H_5(OH)_3$

chất béo — xà phòng

998. $AgNO_3 + 3NH_3 + H_2O \rightarrow [Ag(NH_3)_2]OH + NH_4NO_3$

999. $CH_2OH[CHOH]_4CHO + 2[Ag(NH_3)_2]OH \rightarrow CH_2OH[CHOH]_4COONH_4 + 2Ag + 3NH_3 + H_2O.$

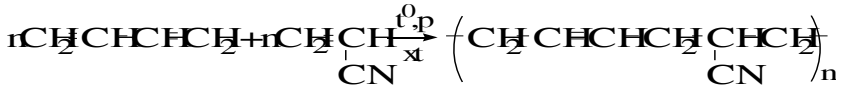
1000. $CH_2OH[CHOH]_4CHO + 2AgNO_3 + 3NH_3 + H_2O \rightarrow CH_2OH[CHOH]_4COONH_4 + 2Ag + 2NH_4NO_3$

1001. $CH_2OH[CHOH]_4CHO + 2Cu(OH)_2 + NaOH \xrightarrow{t^0} CH_2OH[CHOH]_4COONa + Cu_2O + 3H_2O.$

1002. $CH_2OH[CHOH]_4CHO + Br_2 + H_2O \rightarrow CH_2OH[CHOH]_4COOH + HBr$

1003. $CH_2OH[CHOH]_4CHO + H_2 \xrightarrow{Ni, t^0} CH_2OH[CHOH]_4CH_2OH$ (Sobitol)

1004.



buta-1,3-dien acrilonitrin cao su buna-N

1005. $CH_3\text{-}CH_2\text{-}CH_2\text{-}CH_3 \xrightarrow{500^0C, xt} CH_3\text{-}CH_3 + CH_2=CH_2$

1006. $CH_3\text{-}CH_3 + Cl_2 \xrightarrow{as} CH_3\text{-}CH_2Cl + HCl$

1007. $2CH_3\text{-}CH_2Cl + 2Na \xrightarrow{t^0C, xt} CH_3\text{-}CH_2\text{-}CH_2\text{-}CH_3 + 2NaCl$

1008. $CH_3\text{-}CH_2\text{-}CH_2\text{-}CH_3 \xrightarrow{500^0C, xt} CH_2=CH\text{-}CH_2\text{-}CH_3 + H_2$

1009. $CH_2=CH\text{-}CH_2\text{-}CH_3 + H_2 \xrightarrow{Ni, t^0} CH_3\text{-}CH_2\text{-}CH_2\text{-}CH_3$

1010.

1011. $CH_3\text{-}CH_2\text{-}CH_2\text{-}CH_3 \xrightarrow{500^0C, xt} CH_3\text{-}CH=CH_2 + CH_4$

1012. $CH_3\text{-}CH=CH_2 + H_2 \xrightarrow{Ni, t^0} CH_3\text{-}CH_2\text{-}CH_3$

1013. $CH_4 + Cl_2 \xrightarrow{as} CH_3Cl + HCl$

clometan (metyl clorua)

1014. $CH_3Cl + Cl_2 \xrightarrow{as} CH_2Cl_2 + HCl$

ñiclo metan (mrtylen clrrua)

1015. $CH_2Cl_2 + Cl_2 \xrightarrow{as} CHCl_3 + HCl$

triclometan (clorofom)

1016. $CHCl_3 + Cl_2 \xrightarrow{as} CCl_4 + HCl$

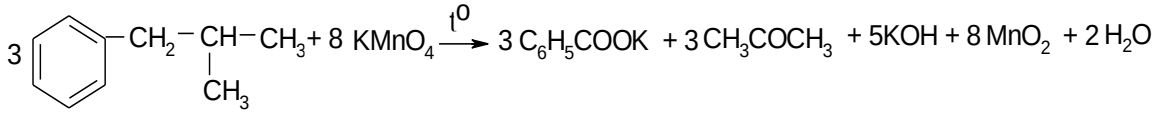
1017. $n2CH_4 \xrightarrow[l\,ln]{1500^0} C_2H_2 + 3H_2$

1018. $C_2H_2 + 2H_2 \xrightarrow{Ni, t^0} C_2H_6$

1019. $C_2H_6 \xrightarrow{500^0C, xt} C_2H_4 + H_2$

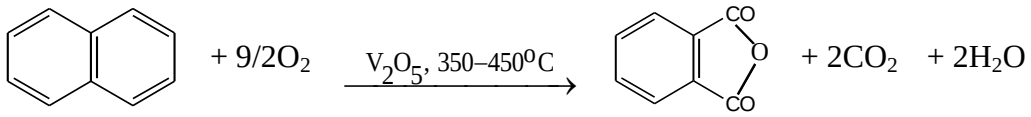
1020. $C_2H_4 + H_2 \xrightarrow{Ni, t^0} C_2H_6$

1021.

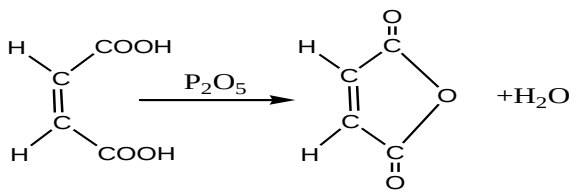


1022. $2C_3H_5(OH)_3 + Cu(OH)_2 \rightarrow [C_3H_5(OH)_2O]_2Cu + 2H_2O$

1023.



1024.



1025. $CH_3\text{–}CH=CH_2 + Br_2 \rightarrow CH_3\text{–}CHBr\text{-}CH_2Br$

1026. $CH_3–CH=CH_2 + H_2O \rightarrow CH_3–CHOH-CH_3 + CH_3-CH_2-CH_2OH$

1027. $CH_3–CH=CH_2 + HBr \rightarrow CH_3–CHBr–CH_3 + CH_3–CH_2–CH_2Br$

1028. $3CH_3–CH=CH_2 + 2KMnO_4 + 4H_2O \rightarrow 3CH_3–CHOH-CH_2OH + 2MnO_2 + 2KOH$

1029. $CH_2=CH-CH=CH_2 + 2H_2 \xrightarrow{t^0,Ni} CH_3-CH_2-CH_2-CH_3$

1030. $CH_2=CH-CH=CH_2 + 2Br_2 \rightarrow CH_2Br-CHBr-CHBr-CH_2Br$

1031. $nCH_2 = CH – CH = CH_2 \xrightarrow{t^0,xt,\ P} (-CH_2 –CH=CH-CH_2-)_n$

1032. $2C_4H_6 + 11O_2 \rightarrow 8CO_2 + 6H_2O$

1033.

$$\underset{\text{tristearin}}{(CH_3[CH_2]_{16}COO)_3C_3H_5} + 3H_2O \overset{t^o,H^+}{\rightleftharpoons} \underset{\text{axit stearit}}{3CH_3[CH_2]_{16}COOH} + \underset{\text{glixerol}}{C_3H_5(OH)_3}$$

1034.

$$\underset{\text{tristearin}}{(CH_3[CH_2]_{16}COO)_3C_3H_5} + 3NaOH \xrightarrow{t^o} \underset{\text{natri stearat}}{3CH_3[CH_2]_{16}COONa} + \underset{\text{glixerol}}{C_3H_5(OH)_3}$$

1035. $CH_2OH[CHOH]_4CHO + 2AgNO_3 + 3NH_3 + H_2O \longrightarrow CH_2OH[CHOH]_4COONH_4 + 2Ag\downarrow + NH_4NO_3$

1036. $CH_2OH[CHOH]_4CHO + 2Cu(OH)_2 + NaOH \xrightarrow{t0} CH_2OH[CHOH]_4COONa + 2Cu_2O\downarrow + H_2O$

1037. $CH_2OH[CHOH]_4CHO + H_2 \xrightarrow{Ni,t0} CH_2OH[CHOH]_4CH_2OH$ (sobitol).

1038. $2CH_2OH[CHOH]_4CHO + Cu(OH)_2 \longrightarrow (C_6H_{11}O_6)_2Cu + H_2O$

1039. $CH_2OH[CHOH]_4CHO + (CH_3CO)_2O \xrightarrow{pridin}$ Este chứa 5 gốc CH_3COO

1040. $C_6H_{12}O_6 \xrightarrow{enzim,30^0-35^0} 2\ C_2H_5OH + 2CO_2$

1041. $CH_3COOH + HC\equiv CH \longrightarrow CH_3COOCH=CH_2$